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# Hitchcock's Machine Tool Blue Book

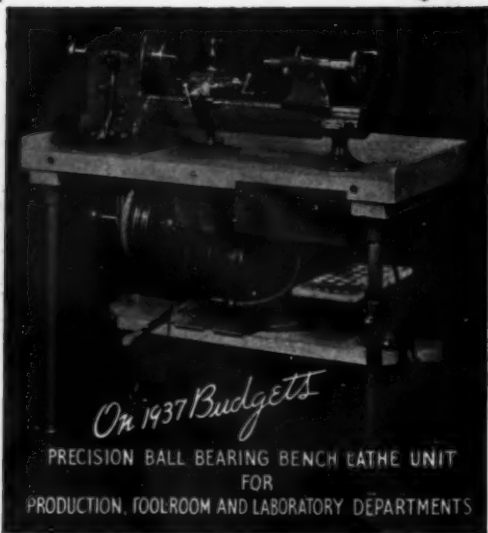
JANUARY, 1937

THIRTY-SECOND YEAR

*Cataract*

**HARDINGE**

*Cataract*



*On 1937 Budgets*

PRECISION BALL BEARING BENCH LATHE UNIT  
FOR  
PRODUCTION, TOOLROOM AND LABORATORY DEPARTMENTS

1' Collet Capacity—9" Swing—Four Smaller Sizes.

*Ask For Bulletin BB*

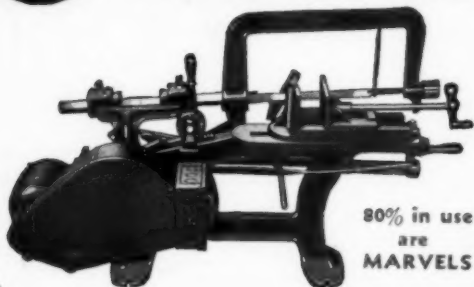
**HARDINGE BROTHERS, INC.,** - **ELMIRA, N. Y.**  
CHICAGO - NEW YORK - DETROIT - HARTFORD

**PUBLISHED AT 508 So. DEARBORN ST. CHICAGO**

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## Low Priced, Dry Cutting **HACK SAWS**



80% in use  
are  
**MARVELS**

### *Exactly the type you need*

When it comes to low priced, dry-cutting hack saws 80% of those in use are MARVELS. In two sizes, they come either belt or motor driven, stationary or in portable types mounted on trucks.

Exceptionally well made with heavy rigid frames, they saw fast and straight. Accuracy is maintained by the heavy frame that holds blade at high tension and slides in V-type bearings that are provided with cap screws to take up wear. A swivel vise is provided to permit angle cutting. The start and stop lever is at the front of the machine; and machine stops automatically at the completion of the cut.

MARVEL Hack Saws are easy on blades for pressure is applied on draw stroke only. In every way these are the most accurate, most dependable, most popular low priced saws built.

**ARMSTRONG-BLUM MFG. CO.**

*"The Hack Saw People"*

341 N. Francisco Ave., CHICAGO, U. S. A.

#### **MARVEL No. 1**

**Capacity 4"x4"**

#### **MARVEL No. 2**

**Capacity 8"x8"**

*available in  
the following  
models:*

- **Standard  
Belt Drive**
- **Motor Drive**
- **Portable  
truck mountings  
with Motor Drive**

*Write for Catalog*

**1. Stronger Teeth**

Improved Flute design permits heavier flutes with greater chip clearance.

**2. More Chip Clearance**

New cupped end and re-designed end-teeth prevent clogging of chips and resultant breakage.

**3. Fast Spiral Design**

# WELDON

*Double end, End-Mills*

*for*

# *Improved Performance*

**GREATER CUTTING  
EFFICIENCY**

PAT.  
PEND.

Stronger teeth and more chip clearance, together with the regular WELDON hollow ground flutes, double back off and fast spiral, make this new end-mill 50% stronger and twice as fast cutting as formerly.

**The WELDON  
TOOL CO.**

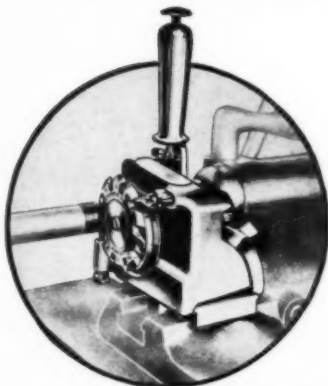
321 FRANKFORT AVE.

CLEVELAND, OHIO

*"Pioneers in Fast Spiral Double-end End-Mills"*

*Rivett*

**IMPROVED THREAD TOOL**



**LOW COST THREADS  
IN QUANTITY**

Rivett Thread Tool mounts on any screw cutting engine lathe and cuts any diameter or form (except square) of thread, six pitch or finer. The Thread Tool is a holder for a ten tooth cutter with means for indexing the cutter to present each of the ten teeth successively to the work.

*For complete details see Bulletin 110-A*

**Rivett Lathe & Grinder, Inc.**

Brighton, Boston, Mass.



# Hitchcock's **Machine Tool Blue Book**

**Selected  
Circulation**

**25,000  
Monthly**

---

**JANUARY, 1937**

**THIRTY-SECOND YEAR**

---

## **STILL GOING UP**

Notwithstanding a short month broken by holidays, machine tool orders booked in November topped the October reports by 8%. This pushes the index up to 147.1, which is within 3 points of the highest for the year.

## **Something Else Goes Up**

The amount of advertising in this issue of the "Blue Book" is approximately 100% more than in January, 1936. The reason: It is giving so many of its advertisers their lowest-cost sales that it is being talked about. The increase of circulation with this issue to over 25,000 monthly (a gain of 25% since last September) should add just that much more to the excellent results the "Blue Book" has been producing for its advertisers.

---

*Published By*

**Hitchcock Publishing Co.**

**508 S. Dearborn St.,**

**Chicago, Ill.**

*Consult the Classified Finding Index for your requirements*



## COLLET AND FEED

**Collets for your Lathes and  
Milling Machines**



**All types and sizes carried  
in stock for prompt shipment**

Collets for your lathes and milling machines when you want them . . . instantly . . . promptly! **HARDINGE** Collets—recognized for accuracy and durability since 1890—are held in stock in sufficiently large quantities in Elmira, Chicago, New York, Detroit and Los Angeles to insure immediate delivery at any time.

This prompt service includes **HARDINGE** Collets for American, Burke, Cataract, Flather, Hendey, LeBlond, Monarch, Porter - Cable, Pratt & Whitney, Rockford, Sebastian, Sidney, South Bend, Sundstrand, Van Norman and all other lathes and milling machines.

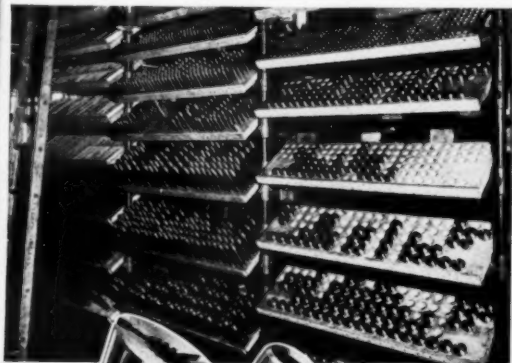
*Ask for bulletin No. 36*

**—ALWAYS SPECIFY HARDINGE COLLETS—**

**HARDINGE BROTHERS, Inc. . . . ELMIRA, N. Y.**

## **FEED FINGER SECTION**

**Collets and Feed Fingers for your Automatic and Hand Screw Machines**



**Standard sizes in stock  
for immediate delivery**

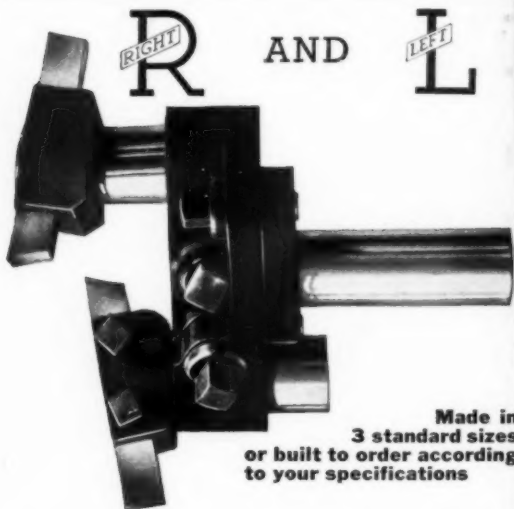
Typical MORRISON quality and quick delivery are planned to meet with the satisfaction of all users of Collets, Feed Fingers and Pads for Brown & Sharpe, Cleveland,

Cone, Gridley, National Acme, New Britain, Davenport and all other automatic screw machines. MORRISON Collets also for Bardons & Oliver, Foster, Garvin, Pratt & Whitney, Warner & Swasey, and all other hand screw machines.

*Ask for catalog No. 34-A*

**—MORRISON MEANS ECONOMY AND PERFORMANCE—**

**MORRISON MACHINE PRODUCTS, Inc., ELMIRA, N. Y.**



Made in  
3 standard sizes  
or built to order according  
to your specifications

## **Save On Your Set-Up Costs With This Combination Tool**

By using various adjustments, one R & L turning tool can be made to perform a variety of operations, singly or together, thereby saving not only tool costs but time required for setting up machines. Extremely fine adjustments are provided both on the tool and on the pressure of the burnishers.

*Ask for complete details*

---

# **R AND L TOOLS**

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# Turning Tool



Entire tool is made  
of heat — treated  
alloy steel

## **Easily Changed In 10 Seconds For Right Or Left Hand Work**

Speed in making set-ups is essential to economy. An R & L Turning Tool can be assembled and adjusted quickly for almost any kind of turning work. Tantalum carbide faces on the backrest act as a burnisher, eliminating rollers and misalignment due to roller wear and producing a highly polished surface.

*Send today for your booklet*

**.S. Nicetown, Philadelphia, Pa.**



**KELLER**

*These three burs are typical examples of special shapes developed to do particular jobs in the aircraft industry.*

# BURS!



We have a large and diversified line of standard burs carried in stock for quick delivery. Often your problem can be solved with one of these. If not we can develop special burs for your job. The three shown opposite are examples of such special cases. Meanwhile send for a copy of our catalog showing over 300 standard burs. It is free to any interested executive.



# YOU



This bur is for breaking the sharp corners of threads on chuck jaws.

## name the problem!

**I**S there in your product a difficult place to reach in finishing? Try burs . . . . . Executives often fail to realize the many jobs these small, inexpensive, handy tools will do. A bur (or rotary file) can be shaped to do a particular job and reach that difficult place. Often a bur driven by a flexible shaft will do work that otherwise would be impossible or highly expensive. Burs do a better job than hand files, with a fraction of the effort.

Keller Burs are well made. Rigid specifications control their material, manufacture and heat treatment, so that each bur conforms to the high standards established. Every bur is particularly suited for the job it must do.

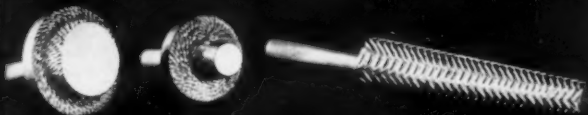
Tell us your finishing problems. When you need burs, think of Keller Burs made by P&W.

### PRATT & WHITNEY DIVISION

Niles - Bement - Pond Co.

HARTFORD, CONN., U. S. A.

### KELLER SALES DEPARTMENT



# BUFFALO

**Punch • Slitting Shear • Bar Cutter**

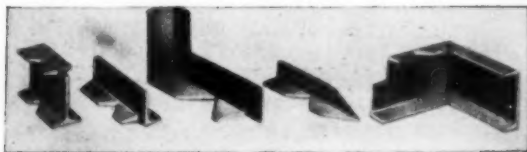
**Four Machines In One (with Built-in Notcher)**

Buffalo Nos. 2½, 3½ and 4½ U. D. machines were designed and built for work requiring the large capacities but not the high punch throat of the larger Buffalo 25 to 29 punches, slitting shears and bar cutters.

These compact, powerful machines have the same unbreakable "armor plate" frame, are built with the same strength and careful workmanship and are covered by the same guarantee as other Buffalo metal working machines.

Interchangeable high and low die blocks on the punch end handle beams, channels, girders, Bethlehem beams and H-sections. Full floating punch head permits exact locating of holes. Shear blades are reversible and are exceptionally long. Angles can be cut on a mitre without inclining the stock. A triple punching attachment can be furnished if desired.

Illustrated below are samples of work done without adjustment of the built-in notcher which can be furnished with this Buffalo machine.

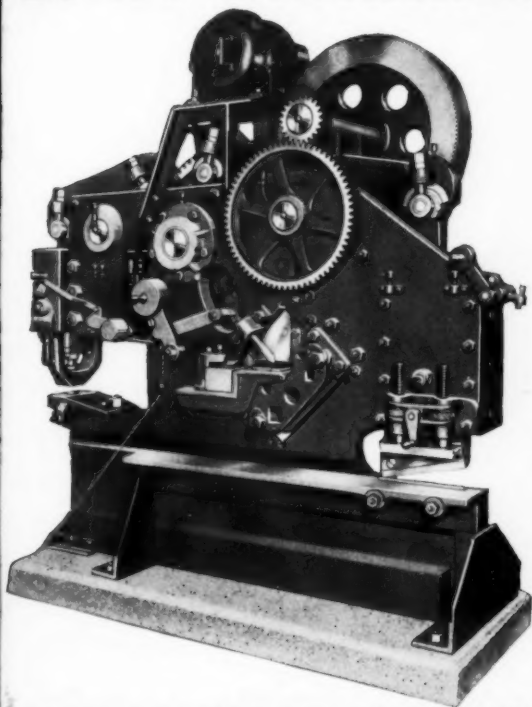


*"Buffalo"*

metal working machines are built to handle every kind of light or heavy work in any kind of metal. Write us today, naming the equipment in which you are interested. Complete information will be sent you without obligation.



# U. D. Machines



**BUFFALO FORGE COMPANY**

161 Mortimer St., - - - Buffalo, N. Y.  
In Canada: Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

# FEDERAL

# DIAL INDICATORS

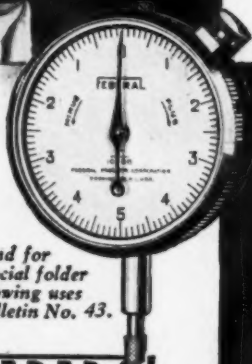


**No two  
workmen  
measure the same  
thing exactly alike**

One measures roughly  
and another precisely.

That is why **FEDERAL**  
**DIAL INDICATORS**  
are being used more  
every day.

*They eliminate  
human variations*



*Send for  
special folder  
showing uses  
Bulletin No. 43.*

**FEDERAL**  
**PRODUCTS CORP.**  
1144 Eddy Street  
Providence, R. I.



1905

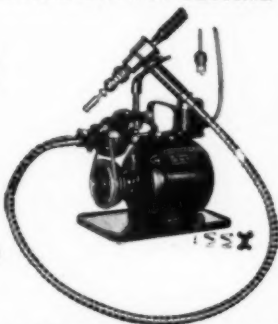


1936

# FLEXIBLE SHAFTS AND MACHINES

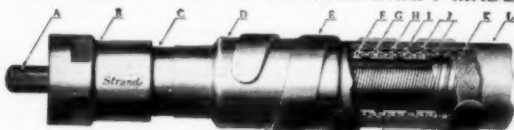
— HIGH QUALITY ONLY —  
SCREW DRIVING AND NUT SETTING MACHINES

We Build  
Machines  
In  
Vertical  
and  
Horizontal  
Types  
 $\frac{1}{8}$  to 2 H. P.  
Capacity



You Get  
Quality  
Only  
When You  
Buy  
STRAND  
Equipment

THE MOST POWERFUL FLEXIBLE SHAFT MADE



Send for our Catalog—Sixty Types and Sizes  
FLEXIBLE SHAFT MACHINES

Manufactured by

## N. A. STRAND & CO.

5001-5009 No. Lincoln St.

CHICAGO



# SHOP SPOTLIGHTS

PLACES LIGHT WHERE IT IS NEEDED

Models for Office, Factory, Drafting  
Rooms, etc., all carried in stock.

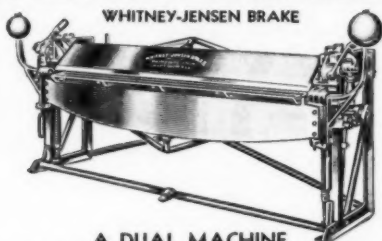
*Catalog furnished on request*

Price    \$3.50 in single lots  
          \$3.25 in lots of six  
                    F. O. B. Factory

CHICAGO DIE CASTING MFG. CO.  
2502 W. Monroe St.,                      Chicago, Ill.

# WORLD BEATERS

Made By the World's Largest  
Manufacturers of Punches and Shears



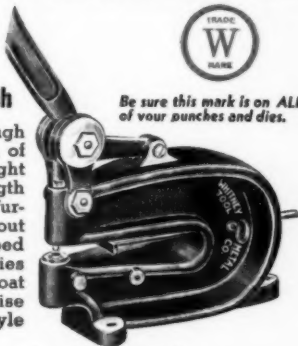
A DUAL MACHINE

Can Be Used for Pan or Box Work by Inserting Box Fingers.

*The tools shown on this page  
are only two of the more than  
80 Whitney styles.*

## No. 16 Bench Punch

Capacity  $\frac{3}{4}$  inch through  
 $\frac{1}{4}$  inch iron. Depth of  
throat  $3\frac{1}{2}$  inches. Height  
of throat  $\frac{1}{2}$  inch. Length  
of handle 22 inches. Fur-  
nished with or without  
work table and equipped  
with 3 punches and dies  
in  $\frac{1}{32}$ ,  $\frac{1}{16}$ , and  $\frac{1}{8}$  inch throat  
depth unless otherwise  
specified. Same style  
made in  $6\frac{1}{4}$  inch.



Be sure this mark is on ALL  
of your punches and dies.

Write for catalog on complete line

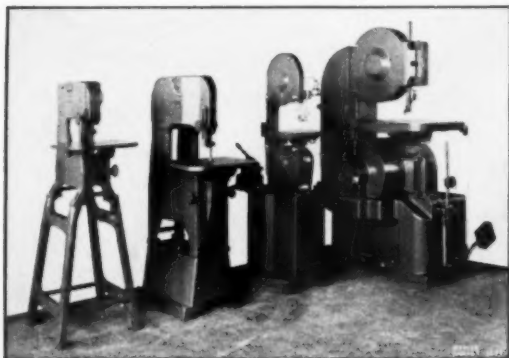
Punches, Shears, Angle Iron Machinery, Bending and Box Brakes

WHITNEY METAL  
ROCKFORD



TOOL COMPANY  
ILLINOIS

# Grob Modern Die Making Machines



## Make Your Dies With Ease

### Continuous Motion Filing Machines

The Grob files are held to an accuracy of .002" heretofore unknown in files. These files firmly guided and driven positively cut

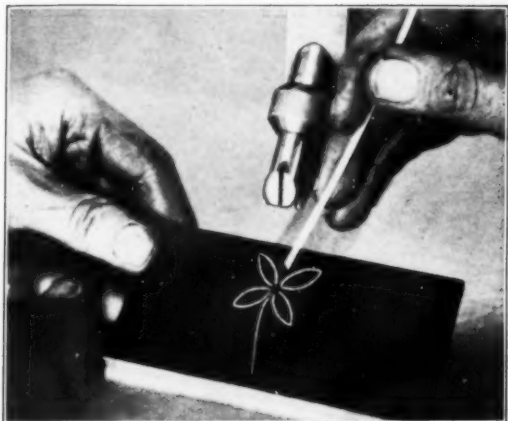
**FAST      SMOOTH      ACCURATE**

### Open End Band Saws

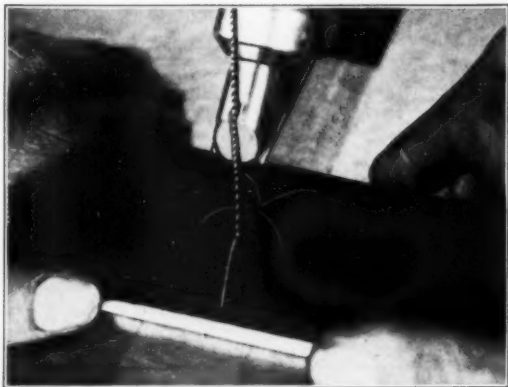
A machine that requires no brazing nor welding for internal sawing. Besides this ingenious feature, the machine, having a positive drive to the saw band, cuts faster than any other type of die band saw.

*Investigate. Write for full information.*

**GROB BROTHERS, - Grafton, Wisc.**



**In 20 seconds the Grob Open End Band Saw is set up for internal sawing. Complete time to saw out part shown was 2½ minutes.**



---

# **Know the Complete Line--**

**Milling Machines**

**Grinding Machines**

**Screw Machines**

**Machinists' Tools**

**Cutters and Hobs**

**Pumps**

**Misc. Shop Equip.**



Have you our general catalog  
No. 140? A copy gladly  
sent on request. Brown &  
Sharpe Mfg. Co., Providence,  
R. I., U. S. A.

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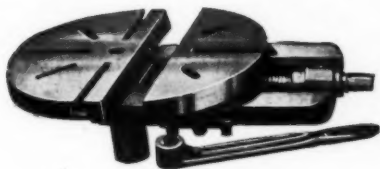
## **BROWN & SHARPE**

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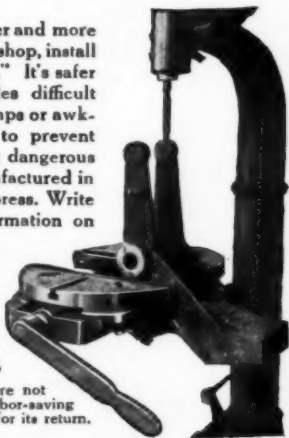
# **FREE TRIAL OFFER**

## **Combination Drill Table and Vise**



**GUARANTEED To Save Its Cost in  
Labor Every Six Months**

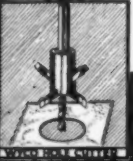
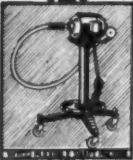
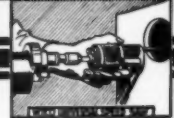
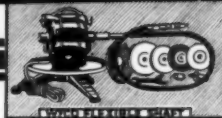
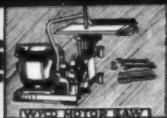
To save time with quicker and more accurate set-ups in your shop, install a Modern "Combination." It's safer and easier to use, handles difficult jobs without blocks, clamps or awkward plates and helps to prevent accidents by eliminating dangerous holding by hand. Manufactured in models to fit every drill press. Write today for complete information on the "Combination" and our 30-day trial, giving dimensions of the table you wish to replace.



### **30-DAY FREE TRIAL**

Costs you nothing. If you are not satisfied in 30 days with this labor-saving tool, we will pay the freight for its return.

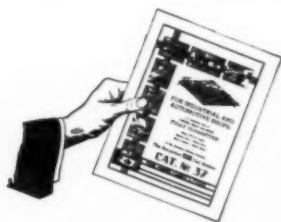
**MODERN MACHINE TOOL CO.**  
**JACKSON, - - - MICHIGAN**



# Announcing:

THE NEW 1937 CATALOG  
OF THE PROFIT-PRODUCING  
WYCO LINE IS NOW  
READY FOR MAILING!

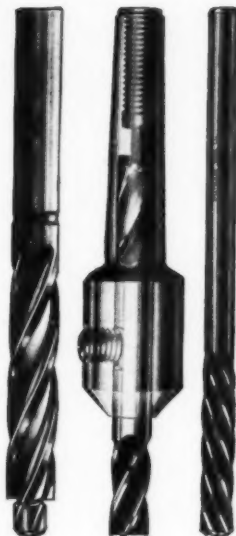
THERE IS A COPY FOR YOU  
FOR THE ASKING!



WYZENBEEK & STAFF, INC.

642 WASHINGTON BLVD.

CHICAGO, ILL.



Other  
**P U T N A M**  
 Tools  
**REAMERS**  
**COUNTERBORES**  
**SPECIAL TOOLS**

**P U T N A M**  
**HI-SPEED**  
**END MILLS**

**W**HEN you order from PUTNAM, you get the finest precision tools that can be made, warranted both as to quality of material and workmanship. The "Hi-Speed" brand of cutting tools is recognized generally as a standard for accurate and economical performance—cutting faster and lasting longer.

**P U T N A M**  
**HIGH-SPEED**  
**END MILLS**

are made in various styles and sizes to meet practically any requirement. Among those illustrated and described in the Putnam Catalog are: Long Double-End Mills, Two and Four Flute; Single- and Double-End Mills, also Two and Four Flute; Ball End Mills; Extra Long End Mills; Heavy Duty End Mills; Spiral Cut End Mills with Morse Taper Shanks, B. & S. Taper Shanks; Two Lipped End Mills; End Mill Holders, etc.

*Complete details will be found in the PUTNAM CATALOG—  
 Write for a Copy Today*

**THE PUTNAM TOOL CO.**  
 2981 Charlevoix Ave.

DETROIT, MICHIGAN

# TAPPING BUILT



- **NOTE**— This illustration shows the new Procunier Style "E" high speed precision tapping attachment equipped with the new "TRU-GRIP" tap holder.

**HERE IS THE  
NEW  
PROCUNIER  
"TRU-GRIP"  
TAP HOLDER**

**THE MOST SENSIBLE TAP HOLDER  
THAT EVER GRIPPED A TAP**

**SEND FOR BULLETIN 436**

# **GATTACHMENTS L FOR SERVICE AND—**

**ACCURACY—** The unique construction of the new Proconier "Tru-Grip" tap holder holds the tap very accurate. The extreme lightness of this new tap holder reduces the fly-wheel effect to the minimum and greatly reduces the strain on the tap. This special feature coupled with ball bearings, superior design, and expert workmanship provides for more accurately tapped holes.

**LONG LIFE—** The special cork facings used on the improved double-cone, long life friction clutch will not wear or absorb oil, maintaining the proper friction surfaces for sensitive precision tapping. Reversing mechanism is hardened for durability, and distributes the pull among three gears which reduces strain and wear to a minimum.

**PRODUCTION—** Capable of withstanding high speeds day after day. The new "Tru-Grip" tap holder reduces strain on the tap and makes your taps last longer.

**VALUE—** All the superior features of the new Proconier High Speed precision tapping attachments equipped with the new "Tru-Grip" tap holder unite to offer you the greatest value in tapping heads ever offered at any price.

**PROCUNIER SAFETY CHUCK CO.**  
14 South Clinton St., CHICAGO, ILL.

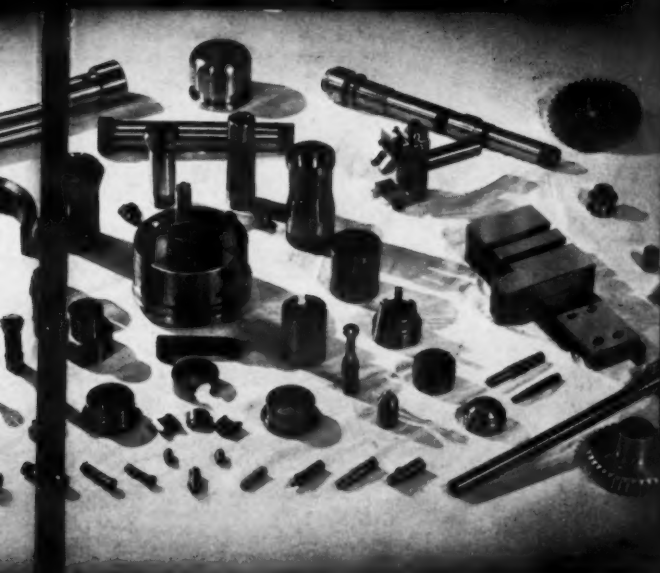


# 1 DEPEND For ALL Types of

Every type of screw machine part is produced by the Modern Collet & Machine Company. Standard parts are stocked for immediate delivery. Parts made to any individual specifications are manufactured promptly. A special department is devoted exclusively to the repair and rebuilding of complete machines.

A COMPLETELY NEW catalog is now ready.  
WRITE FOR YOUR COPY.....TODAY!

**MODERN COLLET & MACHINE CO**



# RELIABLE SOURCE of Screw Machine Parts

the  
parts  
any  
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ly.  
Y!

Parts that assure the utmost in trouble-free, economical service...that are delivered to you without delay...that meet your requirements exactly—regardless of the type of equipment in which they are used. Specify “MODERN PRODUCTS” when *any* screw machine part is needed. You can count on them to do the job—and do it well!

3 Salliotte St., - - Ecorse, Mich.

# SOUTH BEND UNDERNEATH BELT

Motor Driven

LATHE



Model 117-C, South Bend  
Underneath Belt Motor Driven  
Lathe 16" swing by 6' bed in-  
cluding Equipment as **\$779**  
shown.....

The New South Bend back-geared screw cutting Lathes are used in leading manufacturing plants and machine shops for work requiring the highest accuracy and precision in production and tool work.

Write for general Catalog No. 96, giving details and full specifications. Sent Free Postpaid.

## SOUTH BEND LATHE WORKS

766 E. Madison St., South Bend, Ind., U. S. A.

PRICES OF OTHER POPULAR SIZES



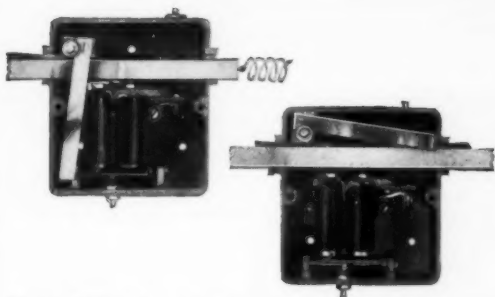
Size and Type Lathe	Between Centers	Ship'g Weight	Less C'shaft	Motor Drive
9"x3' Workshop Bench Lathe....	17"	320	\$ 85.00	\$116.00
9"x3' Junior Lathe .....	16 1/2"	600	172.00	278.50
9"x3' Standard Change Gear.....	16 1/2"	655	227.00	322.00
9"x3' Quick Change Gear.....	16 1/2"	655	267.00	362.00
11"x4' Standard Change Gear.....	24"	920	294.00	452.00
11"x5' Quick Change Gear.....	36"	990	346.00	504.00
13"x4' Quick Change Gear.....	16"	1410	388.00	581.00
15"x5' Quick Change Gear .....	24 1/2"	1460	454.00	694.00
16"x6' Quick Change Gear.....	34"	2230	537.00	779.00

# SOUTH BEND Precision LATHES



# ● STOPS ●

## THE SIMPLEX STOP MOTION



### Multi-Point Protection for Automatic Machines

Mechanical Stops can rarely afford protection at more than one point.

The **SIMPLEX STOP MOTION** permits the use of any number of electric contacts in protecting automatic machines against jams in the feed, failure of any part, or other accidental troubles which cause serious damage and expensive shutdowns.

The **SIMPLEX STOP MOTION** is a **SIMPLE, INEXPENSIVE** electro-mechanical latch device, designed to control a heavy spring and to **RELEASE** your clutch **INSTANTLY** when an electric contact is made. It then opens the circuit—a patented feature which prevents arcing or burning in your contact points.

You do not need expensive magnetic clutches, internal brake motors and complicated electrical controls to secure the benefits of an **ELECTRIC STOP**.

*Multi-Point Protection Keeps Automatic Machines Running.*

**THE ATLANTIC CO.,** Box 406,  
Rochester, N. Y.



# INCREASED *Speed* PLUS IMPROVED WORK

through the use of  
**S.S. WHITE Super-Quality**  
**CUTTING and GRINDING TOOLS**

They cut faster, cleaner, truer and they last longer. Every tool is backed by the S.S. WHITE reputation for quality and accurate construction. They are no more expensive than ordinary tools, yet they save time, increase production, and cut replacement costs. Send for Catalog TA; it shows the wide selection of sizes and shapes. **USE THE COUPON.**

**The S.S. WHITE Dental Mfg. Co.**  
**INDUSTRIAL DIVISION**  
10 East 40th St., Room 2310H  
NEW YORK, N. Y.

Send me a copy of CATALOG TA  
with price list.

NAME .....

ADDRESS .....

CITY ..... STATE .....



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A



### **The Rotor E-1C Rotor Drill**

Here is a 1937 tool that always does the job with plenty of power to spare.

Up-to-date portable tools quickly pay for themselves. A ten day trial will prove it.

THE

# **ROTOR**

AIR TOOL  
COMPANY

CLEVELAND, OHIO



**NEW AG3-M**



## **CENTRIFUGAL WATER PUMP**

### **MODERN**

- ★ **DESIGN**
- ★ **CONSTRUCTION**
- ★ **PERFORMANCE**

### **SPECIFICATIONS**

1/4 H. P.—BALL BEARING—1725 R. P. M. MOTOR  
25 GALLONS PER MINUTE WITH 10 FT. HEAD—  
IRON BODY—BRONZE IMPELLER—  
SPRING TENSION PACKING—  
STRAIGHT OR PRIMING COVER OPTIONAL—  
PUMP SHAFT REPLACEABLE.

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**FULFLO SPECIALTIES COMPANY, INC.**  
**BLANCHESTER, OHIO**

# Unlike Any Other Grinder

## HAMMOND HI-SPEED SNAGGING GRINDER



Type WC  
Single  
Spindle  
1 Motor

7½-10-15 H. P.

Type WWC  
Double  
Spindle  
2 Motors  
5-7½ H. P.

Totally Enclosed  
Fan-Cooled Motors  
Mounted Rear of Base

## HAMMOND HEAVY-DUTY FOUR-BEARING GRINDER

Type WH  
5-7½-10  
Horse Power

Ball or  
Timken  
Roller  
Bearings

Pin this ad to your  
letterhead for Cata-  
logs complete line  
Grinders & Polishers



Address Dept. 14

*Hammond Machinery Builders*  
INCORPORATED  
KALAMAZOO, MICHIGAN, U.S.A.

Eastern Branch: 148 West 23rd Street, New York

**QUALITY  
TOOLS  
PRODUCE  
PROFITS**

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**BUY  
QUALITY**

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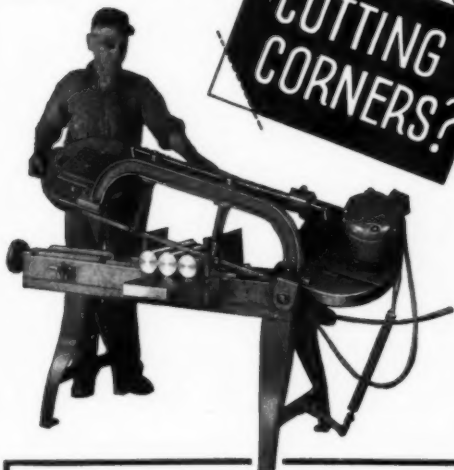
*Ask For  
Catalog*

**The AVEY  
DRILLING  
MACHINE  
CO.  
CINCINNATI**



# ARE YOU

# CUTTING CORNERS?



**I**N either production costs or metal the easiest and most accurate way is with a Wells Metal Cutting Band Saw. Yes,—any shape—bar, flat, round, angle or tube. It's a sturdy high speed unit that finds work to do in any part of a plant because it's portable and handy. There are other advantages we tell about in our latest folder. Send for it.

Built in two sizes—No. 8 capacity, 8' diameter round or 8'x16' flat—No. 5 capacity, 5' diameter round or 5'x10' flat.

**Wells Manufacturing Corp.**

315 Seventh Avenue,

Three Rivers, Michigan

## New Delta 17" Drill Presses

Designed to serve the needs of the general machine shop, tool room and production shop, this new machine with its many built-in features and advanced engineering make it adaptable to a wide range of jobs.

The drill's overall dimensions are: 66 inches high, 18 inches wide, 27 inches front to rear. Floor base has 10 inch by 13 $\frac{3}{4}$  inch table surface, slotted for T-bolts. Bench type production base is available with 20 inch by 20 inch table surface and with oil trough all around. Maximum capacity is  $\frac{3}{4}$  inch in cast iron. An extra large spindle pulley provides five speeds: 385, 600, 935, 1450 and 2240 r. p. m., carried in two self-sealed New Departure Ball bearings. Pulley is of floating type developed by this company, in which none of the belt pull or stresses is transmitted to spindle. Spindle does not project through the pulley, but is keyed

to it. Lower end of spindle is machined to form a 16 tooth automobile type spline, which slides in a husky floating sleeve, internally splined to fit. Sleeve has a very long bearing on spindle, permitting very sensitive feeding and practically eliminating wear.

The spindle is carried at the lower end of the quill in two self-sealed New Departure ball bearings, pre-loaded and closely spaced. This makes the spindle free running and very rigid, assures long life and eliminates spindle whip. Furnished with socket for No. 2 Morse taper or with  $\frac{1}{2}$  inch capacity Jacobs chuck. One of the features of this machine is that the heads can be used as units to build up special



*(Continued on Page 38)*



# DO IT—

**Better—Faster—for Less!**

*with* **ODIN UNIVERSAL**

**Precision Vises  
Swivel and Plain**

**with Interchangeable Jaws and  
Hardened and Ground Parallels**

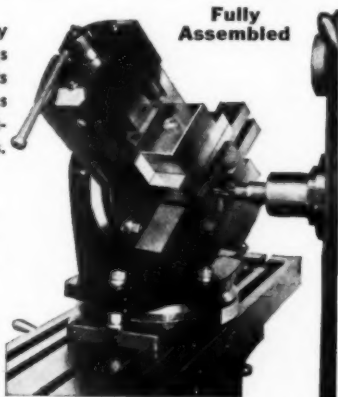
They quickly pay  
their costs in savings  
on High Tool Costs  
—Expensive Fixtures  
—Patterns and cast-  
ings—Extra Set-Ups.

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Investigate the  
money saving  
possibilities of  
**ODIN VISES**

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*Write today  
for full facts  
and prices.*



Let us show you how to make cheaper and  
better jigs and fixtures at a greatly reduced  
cost—with a great saving in time.

**ODIN UNIVERSAL**  
**CORPORATION**

**CHICAGO**

**Sales Division  
110 S. Dearborn st.,**

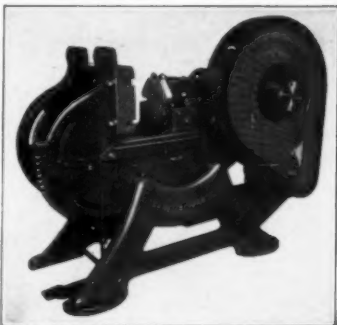
**Telephone  
Franklin 3281**

drilling fixtures. Their low cost makes them more economical than anything that can be made up in tool room or shop, and it is possible to use a number of heads together by linking the foot feeds to a common lever.

## New Federal Horizontal Presses

The Federal Press Company of Elkhart, Indiana, announces a new line of Federal horizontal open back inclinable presses. The new press is of the open back type and is mounted on extra heavy legs. It is constructed along the same line as the regular line of Federal inclinable presses.

Special features include unusually long ram guides with wide flat bottom and angular top, bearings fitted to gibs with adjustment from either side, making it possible to maintain perfect alignment at all times. An outstanding feature is the Timken roller bearing flywheel



which eliminates a great deal of former clutch troubles. Standard equipment includes bolster plate, upper knockout bar in ram, knockout bracket on the frame and complete set of wrenches. Can be furnished with the Federal patented brake release and bronze bushings in the main and crank bearings.

The Federal horizontal press is especially adaptable for automatic feeds such as roll or pinch feeds and is equipped with the improved built-in Federal patented non-repeat sliding key clutch mechanism which has proved to be the most practical and economical, both from the point of initial cost as well as maintenance. The same high grade material and workmanship is used throughout as on the regular Federal

*(Continued on Page 40)*

# HERE'S PROOF of the power and speed of SKILSAW'S new low priced **DEFENDER DRILLS**

**A.E. 1020  
COLD ROLLED  
STEEL**



**1/2" DEFENDER  
\$35.00**

**1/4" DEFENDER  
\$19.50**

**THIS 1/2" DEFENDER DRILL**  
drilled a 1/2 in. hole in 1/4 in.  
stock in only 28 Seconds!

**THIS 1/4" DEFENDER DRILL**  
drilled a 1/4 in. hole in 1/4 in.  
stock in only 13 Seconds!

Never before such performance... such quality construction and engineering in low priced drills! Bearings are ball and self-lubricating Oilite bronze. Motor has extra overload capacity for continuous running and longer life. Special alloy steel gears, helical cut for quiet operation. Die-cast alloy frames for strength and lightness. Compare their specifications, power and speed and you will see why DEFENDER Drills are the biggest drill "buy" on the market.

*See Your Distributor and Write for Our Catalog*

## SKILSAW, INC.

3304 ELSTON AVE., CHICAGO  
210 E. 40th St., New York - 52 Brooklyn  
Ave., Boston - 312 Omar Ave., Los Angeles  
2065 Webster St., Oakland

line and there are a variety of sizes to suit your requirements. Furnished with direct V-belt motor drive, or can be driven direct from line shaft, as desired.

## **Sundstrand Automatic No. 2 Electromil**

The Sundstrand Machine Tool Co., Rockford, Ill., announce a new machine, their No. 2 Electromil, designed for high speed, economical production of small work pieces.

The Sundstrand Automatic No. 2 Electromil is a small Rigidmil with automatic electric table-control for high speed milling on parts for business machines, household appliances, electrical apparatus, fire-arms, machinery parts, tools etc. It can use very simple fixtures and can be set up or changed from one job to



another, very quickly. So easily is this accomplished that the No. 2 Electromil can be used most effectively to secure low cost milling on parts manufactured in small quantities; in fact, it is said to approach the economy of a special machine in this respect without the high purchase price required for the special machine. The convenience of set up, simplicity of tooling, high speed, automatic operation all combine to make this machine ideal also for continuous operation on long run work. Design of the No. 2 is extremely simple, with the heavy base, rigid column, patented rectangular overarm and adjustable spindle-head which contribute to the successful operation of Sundstrand Rigidmils.

A bulletin, fully illustrating and describing the Automatic No. 2 Electromil, will be sent upon request.

# ARMSTRONG

TRADE MARK REG. IN U.S. PAT. OFFICE

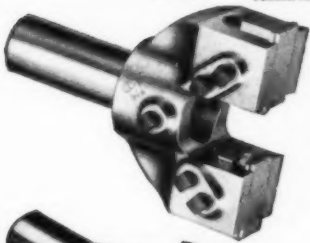
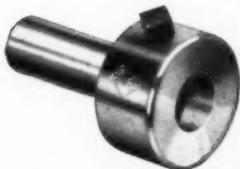
## Turret Lathe and Screw Machine Tools

To Make 1 Ounce of Steel Do the Work of 10 . . . use ARMSTRONG Turret Lathe and Screw Machine Tools.

To eliminate delays for "tooling up" and to save costly machine hours lost waiting for tool grinding . . . to end tool breakage and tool failure . . . to "Save All Forging, 70% Grinding and 90% High Speed Steel," use ARMSTRONG TURRET LATHE AND SCREW MACHINE TOOLS.

Like ARMSTRONG TOOL HOLDERS, these new, permanent, multi-purpose tools take cutters that any mechanic can quickly grind from stock shapes of High Speed Steel, standard drills, ARMSTRONG Cutter Bits and Knurls obtainable anywhere. They reduce

tooling-up to the selection of the cutter, adjusting for clearance and tightening of screws. Studied designs assure not only maximum strength and efficiency for today's operation but for tomorrow's work as well. ARMSTRONG TURRET LATHE AND SCREW MACHINE TOOLS are distinctly a part of the modern production department, are a certain step toward lowered cutting costs and higher profits.



Tools illustrated (top to bottom) Angle Cutter Holder, Drill Holder, Knurling Tool, Facing Tool.

Write for Catalog B-35

**ARMSTRONG BROS. TOOL CO.**

"The Tool Holder People"

308 N. FRANCISCO AVE.,

CHICAGO, U. S. A.

## New Catalog on South Bend 9" Lathe

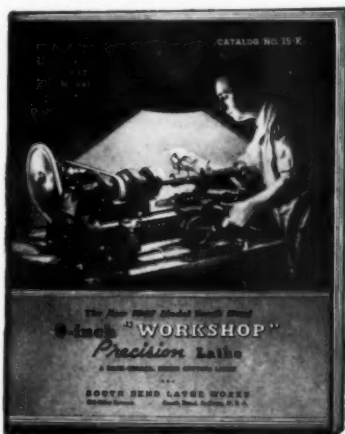
The South Bend Lathe Works have published a new 24-page catalog announcing their 1937 model 9-inch Workshop Precision Lathe. Over 150 illustrations show the many new styles, features and applications of this back-geared, screw cutting lathe.

A number of pages with many illustrations show the methods used in obtaining and testing the high degree of accuracy this new lathe attains. Sixty-four major tests show that accuracy in the alignment of all parts is within .0001". Cuts from 4 to 40 screw threads per inch, and with a fine thread cutting attachment this can be increased to 80 per inch. A precision lead

screw cut on a special machine allows cutting the most accurate threads.

Bed is a one piece casting of steel and nickel iron, in lengths of 3, 3½, 4 and 4½ feet. Every lathe has 3 V-ways and one flat way accurately planed, seasoned and hand scraped so that headstock, tail-stock, carriage and bed are all in accurate alignment. The 1937 lathe is offered in seven styles to fit a wide number of installations. Many typical installations are shown, together with 38 different attachments for handling all types of metal work.

Readers wishing further information about this new lathe should write the Technical Service Dept., South Bend Lathe Works, 425 E. Madison St., South Bend, Indiana, mentioning this magazine.



THE RIGHT TOOL FOR EVERY JOB



**THE RIGHT TOOL** at the production end of the machine is an important item in the set-up, for production is hampered unless the cutting tools are fully equal in design and quality to the fast, powerful machines on which they are used.

*Order from Stock—You're Sure of the Best*

**MATERIALS—WORKMANSHIP—DESIGN** are all combined in Gairing Cutting Tools to meet the requirements of modern high speed production. The standard Gairing line is comprehensive and contains the most complete line of standard modern end cutting tools available.

**SEND FOR CATALOG** of the Gairing line on your company letterhead — put your special problems up to us. A Gairing representative is near to serve you.



**THE GAIRING TOOL CO.**

**1629-35 WEST LAFAYETTE • DETROIT, MICHIGAN**

## Universal Pneumatic Die Cushions

A new, improved design of a combination drawing and stripping die cushion is now being marketed by the Dayton-Rogers Manufacturing Company, 1845 E. Franklin St., Minneapolis, Minnesota.

The basic design of this device is a heavy cast iron alloy cylinder that may be clamped directly to the press bolster plate for shallow drawing purposes. It may also be placed with the use of spacing studs clear of the



bolster plate for compound blanking purposes. The long piston, having a hardened and ground top face to receive the draw ring pins, is guided by a generous-sized piston stem protruding through the bottom of the piston cylinder. The end of the threaded piston stem is provided with a precision adjusting hand wheel that predetermines the height of the piston face when the piston is at rest. This eliminates the necessity of correcting the length of the draw ring pins or stripper rods on compound dies.

Each pneumatic cushion unit is self-contained and takes the air directly from the air line; consequently, the necessity of auxiliary air tanks is eliminated. It is also provided with a pneumatic hose con-

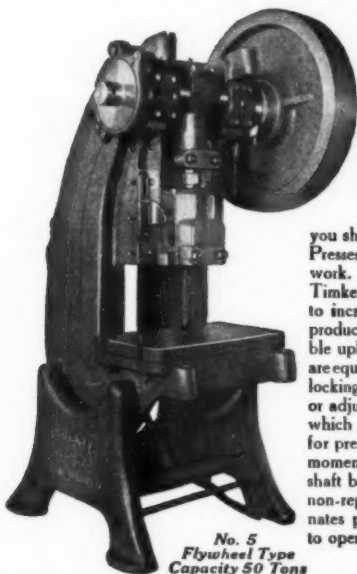


nection from the regulating valve with a pressure

*(Continued on Page 46)*



# **FEDERAL** Heavy Duty Open Back Inclinable **PRESSES**



*No. 5  
Flywheel Type  
Capacity 50 Tons*

*“Built  
for  
Service”*

Accuracy, dependability, lower operating and maintenance costs are a few of the reasons you should use **FEDERAL** Presses on your production work. All models are Timken bearing equipped to increase efficiency and production at lowest possible upkeep cost. Clutches are equipped with a positive locking device for die setting or adjustment and a device which makes it impossible for press to repeat in event momentum carries the crank shaft beyond center. This non-repeat feature eliminates possibility of injuries to operator or dies.

There is a **FEDERAL** Press for almost any type production job—from the jeweler's to the railroad shop. They are the result of more than 40 years of continuous effort and experience to produce the ultimate in press design and construction.

*Write for Complete Details and Specifications*

**FEDERAL PRESS CO.**  
—ELKHART, INDIANA—

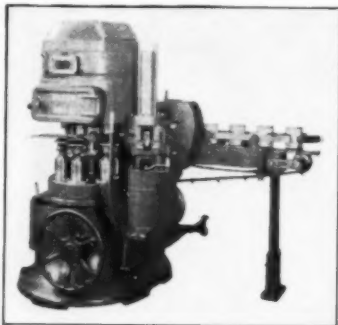
gauge recording the amount of air pressure used on each job. The cushion is designed so compactly that it may easily be installed on the bottom of the bolster plate through the hole in the bed of the punch press. For drawing purposes the cushion is fastened with four cap screws to the bolster plate. For compound blanking and piercing purposes, the four spacing studs are used to allow for slug clearance between the top of the cushion and the bottom of the bolster plate. In both cases, rigid and accurate alignment is always assured.

This universal cushion is now offered in five sizes having piston diameters of four inches to twelve inches, working pressure from one-quarter ton to five tons on an air line of 20 pounds to 150 pounds, with a maximum drawing capacity of 1½ inches on all sizes.

### **Bliss High Speed Double Seamer**

The E. W. Bliss Company, 53rd St. & 2nd Ave., Brooklyn, New York, is offering to the canning trade a new and improved high speed double seamer with a non-spill can feed and marking device.

This new machine is able to handle the range of sizes from No. 1 to No. 3 cans and is arranged with a V-belt motor drive. As furnished, this machine closes tops on filled one quart cardboard-body oil cans. The speed of the seamer is dependent upon the rate at which the filler can



supply filled bodies to it and can be operated at speeds of 175 to 200 per minute on this work. In seaming the bottoms of empty tin bodies this seamer is operated at a speed of around 300 per minute, while for seaming the bottoms of empty cardboard bodies the speed is around 250 or better.

# ALLSTEEL JUNIOR PRESS BRAKE



*Send today for a  
complete catalog*

**VERSON ALL-STEEL** press brakes are now made in 6 sizes with capacities up to and including 10 gauge by 6 feet. These light, compact machines will handle at greatly reduced cost most work now done with larger, heavier and more expensive equipment.

## **Install a Verson Press Brake to Cut Production Costs**

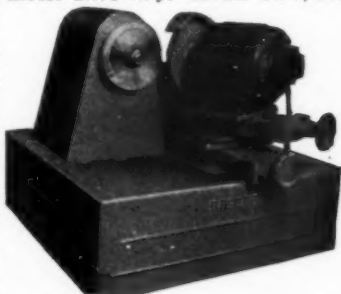
For economical fabrication of sheet metal parts under conditions of high speed, assembly-line production, you can depend on an **ALLSTEEL** press brake to deliver to its full capacity with maximum economy and efficiency. In continuous, daily use, these rigid, compact, easily portable machines meet the most exacting requirements.

**The Allsteel Press Company, Inc.**  
12017 S. Peoria St., Chicago, Ill.

## Rogers Introduces New Knife Grinders

A new, rugged circular knife grinder made in two models, for single or double bevel knives or discs was developed recently by Samuel C. Rogers & Co., of Buffalo, New York.

The new machines, which are made in both bench and floor types, have cabinet base construction, and are furnished for motor drive only. Model CC-1, the smaller size, has a capacity for knives to 14 inches in diameter. Model CC-2 has a capacity for knives to 20 inches in diameter. Both models are entirely self-contained, with control switches mounted on the base.



The knives are mounted on an adjustable arbor with provision for solid circular knives or knives made in two sections and are revolved by separate motor drives through V-belt connections. For thin knives of small diameter suitable flanges are provided for supporting the knife.

The grinding wheel is 6 inches in diameter and  $\frac{1}{2}$  inch thick and is mounted directly on the arbor of a ball bearing  $\frac{1}{4}$  horsepower motor with provision for eliminating end thrust. On special order, the machines may be equipped with an 8-inch wheel and with a larger motor. An attachment for wet grinding is also available on special assemblies.

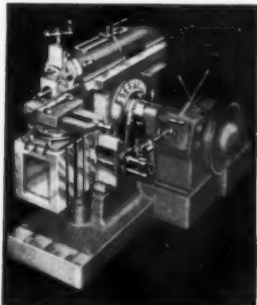
The entire grinding wheel and motor assembly has a double adjustable slide mounting to afford either single bevel or double bevel grinding and a positive graduated index for setting any degree of bevel, while a swivel adjustment permits grinding bevels either way on the work. The grinding head operates in and out by hand through a screw and hand wheel.

Outside dimensions of the new grinders are given as 23 by 20 inches and 26 by 20 inches. Complete equipment includes two  $\frac{1}{4}$  horsepower motors, grinding wheels, flanges, wrenches and emery dresser.

# POWERFUL MACHINES

*For Heavy Work*

## STEPTOE SHAPERS



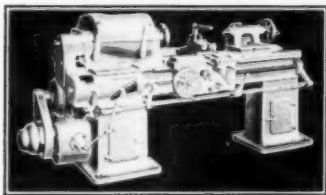
Power vertical feed and universal tilting table make difficult jobs easier.

Force feed continuous lubrication, heavy construction and Timken bearings throughout insure rigidity, accuracy and long life. Centralized controls are within easy reach of the operator at all times.

Instantaneous feed and speed changes may be made with fingertip control while the machine is running.

*Send today for catalog No. 130.*

## CHARD Twelve-Speed All Geared Lathes



Precision Timken or Plain Bearing Spindle.  
Instantaneous Start or Stop of Spindle.  
12 Speed Changes in 15 seconds.  
Heat Treated and Hardened Gears run in Oil in Speed Box.  
All Shafts mounted on Ball Bearings.  
Powerful, Accurate, and Easy Control.  
Built in 16", 18" and 20" Standard Engine Lathes, Manufacturing Lathes and Tool Room Lathes.  
*Send for complete catalog No. 100.*

**DEALERS:** *Write for dealer proposition.*

**Western Machine Tool Works**  
**HOLLAND,                      ::                      ::                      MICHIGAN**

## Hydromatic Welding Machines

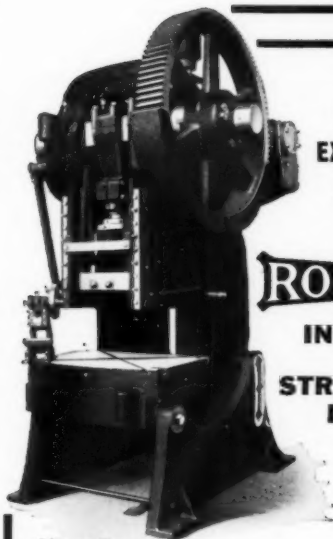
The Progressive Welder Company, 737 Piquette, Detroit, Michigan, has successfully built and installed a wide variety of Hydromatic welding machines for various automobile and other sheetmetal fabricators. These machines are particularly appreciated in the automobile industry as they are capable of giving an extremely high production of identical welded assemblies at low cost. They are so designed that they can be easily revamped to suit a new model by simply replacing the lower copper dies and rearranging the position of the hydraulic welding guns.

The Hydromatic welder is designed with the necessary locaters and clamps to correctly position and hold the panels while welding, resulting in a uniform welded assembly, every piece being identical. Individual welding guns are located in a predetermined position. Each gun is controlled by an individual valve in the welding unit. The timing mechanism is automatic and accurate and is easily adjusted, so designed that individual timing of each weld can be adjusted to give the correct results. The welding press is of arc welded steel construction with adjustable brass gibs, and equipped with dual safety controls. Movement of the carriage is controlled by a balanced air-operated latch valve and cushion type air cylinders.

The welding machine is entirely automatic in its operation, the operator merely depressing the control handle to initiate the starting cycle. The carriage then descends to its correct welding position, the Hydromatic welding unit starts, the welds are made and the operation of the unit controls the machine, the carriage is automatically raised to its open position, the unit is shut off and the machine is then ready to unload. The actual time for this complete cycle and weld of approximately 100 spots is about 20 seconds. For complete specifications write to the Progressive Welder Co., at the address given above.

---

"Boston Power Transmission Equipment"—or Catalog No. 51 of the Boston Gear Works, Inc., North Quincy, Mass., is off the press and ready for distribution. This attractive, handy, pocket sized book of 260 pages not only includes a complete description, with prices, of the Boston line, but also much additional data and information of value.



Built for  
**EXCEPTIONAL  
SERVICE**

**ROCKFORD**

**INCLINABLE  
AND  
STRAIGHT SIDE  
PRESSES**

in all  
sizes

**T**HE ever increasing use of heavy sheet metal stampings nowadays in place of castings and the numerous parts formerly made on screw machines, requires presses of greater power and capacity, and that's just what you get in the ROCKFORD.

Rockford Presses are sturdily built of the best materials and incorporate many features that are the result of years of experience in building presses of various types. You can depend upon a Rockford—for it is designed to maintain exact adjustment throughout long runs and under heavy duty.

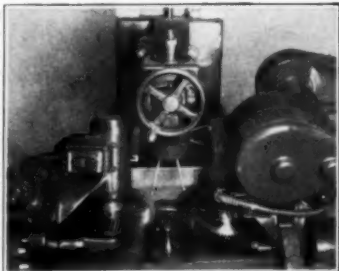
*Write for Catalog*

**ROCKFORD IRON WORKS**  
ROCKFORD, ILLINOIS

## New Duplex Gear Finisher

Designed to meet gear finishing requirements of manufacturers who do not have sufficiently long production runs to take advantage of the rack type of Michigan gear finishers, a new two-cutter, crossed axis, rotary machine has been placed on the market by the Michigan Tool Company, 7171 McNichols, Detroit, Michigan.

It offers to the smaller gear producer or one that has to produce a large variety of only a few gears each, a lower initial cost and lower initial tooling cost. In this duplex finisher the gears are mounted between centers and are



passed between two crossed-axis cutters toward the rear of the machine during the working stroke. An important feature is that the two cutters can be used independently to finish simultaneously two gears of different characteristics in a cluster, or both right and left hand sides of a herringbone gear, thus eliminating duplicate machines and cutting loading and cutting time in half. This is made possible by making the two cutters separately adjustable as to height, position with reference to axis of gears and amount or crossed-axis setting. In the illustration, cutters are shown set to cut a single helical gear.

## Novel Broach Design Solves Production Problem

An interesting example of the influence of machine tool development on product design is shown in the accompanying illustration. A manufacturer of steel casement windows desired to develop an operating mechanism embodying a worm and worm wheel sector, the latter being on the operating arm. High

*(Continued on Page 54)*



# NOPAK

*3 and 4-Way Operating Valves*

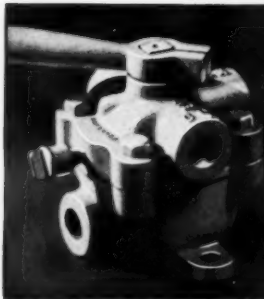
## FOR AIR, WATER AND OIL



FOR OIL OR WATER

Sturdy yet simple in construction, NOPAK Operating Valves offer long, efficient operation without maintenance cost, and with absolute freedom from leakage.

The NOPAK flat disc design provides advantageous port spacing, which insures positive, accurate control with both throttling or quick opening action, as desired.



FOR AIR

- ★ No Packing
- ★ No Maintenance
- ★ Leakproof
- ★ Protected Disc and Seat
- ★ Quick or throttling action, desired

WRITE for Bulletin

# GALLAND-HENNING

MANUFACTURING COMPANY

2753 South 31st Street

Milwaukee, Wisconsin

production was required. The worm, of course, offered no particular difficulties, but the sector did, since the 10 teeth on this sector had to have a spiral lead. The close tolerances, tooth form specifications and production requirements handicapped conventional production methods.

The problem was turned over to Colonial Broach Company of 147 Campau Ave., Detroit, Mich., who solved it by the design of an internal spiral broach for external broaching. It will be noted that the broach itself is spiral in shape and is given a spiral feed during the broaching stroke. The broaches conform to the spiral broaching holder and are produced in removable segments. Three sectors are broached at one time with each broach, the three pieces being held with a single clamp. There are two broaches on the machine which is a standard Colonial utility press, provided with a spiral feed head. With this set-up production runs at the rate of 200 pieces per hour, broaching the teeth from the rough. Both broaches, left and right hand, cut during the same stroke. Operation of the broaching machine is hydraulic throughout.



## **Expands Three Times In Less Than Year**

Organized in December 1935 to engage in the manufacture of electric arc welders, the Commonwealth Manufacturing Corporation of Cincinnati, Ohio, found their volume of business increasing so rapidly that they were forced within two months to lease additional quarters. As business continued to increase, this too, proved inadequate, and now they are located in their own plant at Davis Lane and Turkey Bottom Road, Cincinnati. This consists of six and one-half acres of industrial property, containing five buildings with 52,000 feet of floor space. Here they will continue to manufacture their highly successful arc welder as well as several new products in the electrical and mechanical fields.



## **VARIOUS APPLICATIONS IN AUTOMOBILE PLANTS**

Wide variety of Progressive welding equipment producing underbodies, running boards, cowl assemblies, battery boxes, fenders, seat assemblies, and used on many other sheet steel fabrications.

## **PROGRESSIVE AUTOMATIC SPOT WELDING EQUIPMENT**

- INCREASES PRODUCTION
- ELIMINATES THE HUMAN ELEMENT
- REDUCES UNIT COSTS
- SIMPLIFIES PRODUCTION SETUPS
- UNIFORM WELDED SPOTS
- IDENTICAL ASSEMBLIES

(ALL DESIGNS REGISTERED AND PATENTED)

## **PROGRESSIVE WELDER CO.**

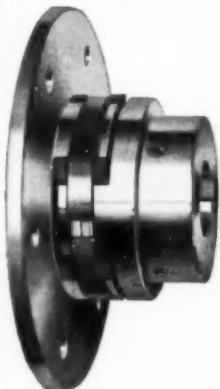
737 PIQUETTE

DETROIT, MICH.

## New L-R Flexible Couplings Save Longitudinal Space

Lovejoy Tool Works, 5026 West Lake St., Chicago, Ill., announce an L-R coupling of new design—the type WF, made with one of the bodies in the form of a flange which bolts onto the flywheel, clutch or brake drum of a Diesel, gas or steam engine.

The flange body design reduces the overall length of this coupling by one-third. A recently installed WFR-800 coupling, capable of carrying a load of 324,000 inch pounds, extends less than 6 inches beyond the rim of the flywheel. This saving of space at an important point, allowing more inches for frame and other parts and adds considerably to the efficiency and life of both drive and driven unit. As on the L-R type W, free floating load cushions are held in place by a quickly removable outside retaining spring. This permits larger hubs and greater load carrying surfaces with consequently increased carrying capacity. The load cushions are always in plain sight and can be removed and replaced in a few minutes without tearing down the coupling. This principle has been fully tested in seven years of service.



L-R Type WF flexible coupling will be made in sizes from 3 inch to 14 inch bores suitable for 2500 h.p. at 100 r.p.m. Three types of resilient cushioning material are available for these couplings—Metalflex, leather and Multiflex.

For further information, details or literature, please address the manufacturer at the address given above.

J. Russell & Company, Inc., Holyoke, Mass., have added the complete line of Stanley electric tools to their stock of supplies, tools and equipment for the industrial and automotive trade. J. Russell & Company, Inc., are well known in New England and have been outstanding supply distributors since 1846.

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# TOOL TROUBLES VANISH

When  
**OLIVER**

**Machines  
Are  
Installed**

Many production failures are traceable to incorrect reconditioning of cutting tools. Only properly ground tools will keep your high production machines "on their toes". Oliver grinders will eliminate tool failures in your plant as users the country over will testify. Machines available for all standard and many special tool grinding operations.



## THE **OLIVER LINE**

**Face Mill Grinders,  
Twist Drill  
Grinders,  
Tap Grinders,  
Die Making  
Machines,  
Cutter Grinders,  
Precision Tool  
Grinders.**

## **OLIVER DRILL POINTERS**

The cut illustrates the Oliver patented Drill Grinder; a machine that generates correct lip form on the drill in one operation. Grinds the patented Oliver drill point. Assures greater number of holes per grind, saves on drill costs, spoiled work, etc.

*Write for complete information on this machine—and the rest of the Oliver line of Tool Reconditioning Equipment.*

## **OLIVER INSTRUMENT COMPANY**

**1408 E. Maumee St.,**

**ADRIAN, MICHIGAN**

---

Wyzenbeek & Staff, Inc., 642 W. Washington Blvd., Chicago, Ill., manufacturers of the WYCO line of flexible shaft equipment, have developed a new low priced right angle head to fit their "Junior" line of flexible shafts. This new attachment is known as the No. 214 WYCO "Junior" Angle Head. It can be used for right angle sanding or grinding. A short drill chuck arbor and  $\frac{3}{8}$  inch drill chuck can be furnished for right angle drilling in close quarters.



While primarily designed to operate from the spindle of the WYCO "Junior" flexible shaft, a small adapter arbor is available to permit this angle head to be chucked in a small electric drill to form a portable sander, or to do drilling operations at right angles. The new WYCO Catalog No. 37 contains full information—if you haven't a copy, send for it.

---

Metal & Thermit Corporation, 120 Broadway, New York City, announces an addition to its line of Murex heavy coated electrodes for arc welding. The new electrode, known as Murex Type N, is designed for bridging gaps where fit-up between plates is poor and, in the smaller sizes, may be used on vertical and overhead work, or to make rapid, single pass welds on light gauge materials. In addition, it will produce clean, sound, single or multiple pass fillets. The physical properties of the metal deposited are said to range from 74,000 to 84,000 lbs. per sq. in. in tensile strength, with 26% to 24% ductility. Further particulars may be had by writing to the manufacturer.

# WITTEK

AUTOMATIC

## Roll Feeds

For Every Size and Make of Punch Press

**FAST  
ACCURATE  
AUTOMATIC  
SAFE**



### Increases Punch Press Production

Keeps production at the same steady high level day in and day out—no fatigue or other human "let down". Easily installed on any press without alteration. Feeds automatically any stock from coils in lengths from 0" to 24" per press stroke. Saves time, operating costs and dies—reduces scrap to a minimum. A type for every requirement—Single Roll, Double Roll, and Compound with straightener.

### Wittek Reel Stands

Automatic, Self-Centering, Ball-Bearing. Adjustable to any height, balanced at any angle, 500 lb. capacity. Prompt deliveries from stock. Also made in four other models.

Write Today for Bulletin "HF" giving complete details and specifications of WITTEK Automatic Roll Feeds and Reel Stands.



**WITTEK MANUFACTURING COMPANY**

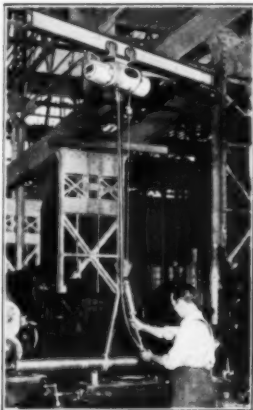
4305 S. W. 24TH PLACE.

CHICAGO, ILL.

## "Spot Handling" with New Light Hoist

In marketing a new type of small hoist called the "Zip-Lift," the Harnischfeger Corporation uses the term "spot handling" to describe the specific application in machine shops for which the hoist was designed. "Spot handling" implies the use of the Zip-Lift as a machine tool accessory for getting heavy pieces from the floor to the chuck and back again, making the machine tool operator independent of crane service, avoiding unnecessary delays, relieving him of physical effort as well as eliminating old-fashioned, hand-operated equipment.

With all welded construction, the Zip-Lift is an extremely light unit, weighing little more than 100 lbs. It can be carried by one man and changed from one location to another very easily. Motor is enclosed in leakproof housing and shafts are carried on capsule-mounted ball bearings. Triple brakes assure safety and a weight-operated limit switch prevents the load block from jamming the hoist mechanism. Easily installed, the "Zip-Lift" can be hung on a hook, jib or trolley to serve one or more machine tools. Plugs in on 220 or 440 volt, three phase, A.C. circuit. Has lifting height of 18 feet, at speeds from 15 f.p.m. to 32 f.p.m. and lifts up to 750 lbs., stopping accurately with a fraction of an inch for proper positioning of work.



A recent bulletin presents case studies of various types of installations in machine shops, giving results of actual service tests, together with figures. A copy of this bulletin will be sent upon request if you will write the Harnischfeger Corporation, 4400 W. National Ave., Milwaukee, Wisconsin, and ask for bulletin H-2.





# THE HOME of SHEAR CUT ● END MILLS



**A**BOVE is pictured the plant of the PROGRESSIVE TOOL & CUTTER CO., at Ferndale, Michigan. Here, amid attractive surroundings and under ideal working conditions, is where the entire PROGRESSIVE line of quality tools is manufactured. The Progressive line of Shear Cut End Mills and Holders and other related Cutting Tools is made here from high grade materials with the finest of workmanship.

## An End Mill for Every Job !

Send us your blue prints on special end mills. Our many years of experience in their design and manufacture is at your disposal without obligation. We can give you good prices and quick deliveries. "When You Think of End Mills—Think of PROGRESSIVE."

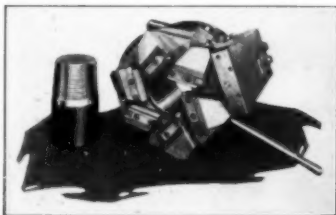
*Write for Your Copy of the Progressive Catalog Today—  
it illustrates and describes our entire line.*

**PROGRESSIVE TOOL & CUTTER CO.**

## Landis Taper Cutting Die Head

A special heavy duty taper cutting die head for handling threads of large diameters, steep tapers and extra lengths, has been added to the line of die heads manufactured by the Landis Machine company, Waynesboro, Pa. Known as a special 6 inch Landmatic, it augments the line of die heads with taper attachment previously manufactured in sizes up to 4 inches. The head is of the six-chaser type and was designed for threading parts used in the oil industry such as tool joints, drill stems, etc.

This head is a stationary type adapted for use on a heavy duty turret lathe. An adjustable bar, mounted on some stationary part of the machine, retards the cam carrier as the head advances onto the



work. The adjustable bar is set to have contact with the cam carrier just as the part to be threaded enters the die. The sliding movement of the cam, along the cam shoe, allows the chasers to recede at a uniform rate and produces a tapered thread corresponding to the taper of the cam. The head opens automatically when the cam trips off the end of the cam shoe. Before the head is closed, the carriage must be returned a sufficient distance to clear the stop bar. The adjustment for thread length limits the forward travel of the cam carrier and insures threads of uniform diameter and length.

This die head can be supplied for cutting various diameters, tapers and thread lengths. It was primarily designed for cutting 6 inch O.D. thread, 4 pitch, 2 inch taper per foot and 5 inch length of thread. The same head can also be adapted for cutting 5½ inch O. D. thread, 4 pitch, 3 inch taper per foot, 4¾ inch long and 4⅝ inch O.D. thread, 4 pitch, 3 inch taper per foot and 4 inch long.

If Your Automatic and Hand Screw Machines are  
Equipped with

## **Sutton DIAMOND-GRIP Collets**

You Have Less Chucking Strain-Less Wear on  
the Collet-Less Spoilage



**BECAUSE** all Sutton Collets are diamond serrated, and **DIAMOND SERRATIONS** grip tighter under less tension.

Sutton **DIAMOND-GRIP** Collets are furnished in single-piece and master types for all machines, also in compensating type for hot-rolled stock.

*Send for complete Sutton catalog on  
screw machine accessories.*

**SUTTON TOOL CO.,** 2836 W. Grand Boulevard,  
DETROIT, MICHIGAN

## Beaver Pipe Tools Catalog

Beaver Pipe Tools, 330-770 Dana Ave., Warren, Ohio, recently issued catalog No. 37 covering their line of pipe tools.

Since 1929 this company has brought out some forty new tools and improved eighteen others. Among these tools is the No. 60-R ratchet threader illustrated. This model has three sets of dies, each threading two sizes ( $\frac{1}{4}$  &  $\frac{3}{8}$ ) ( $\frac{1}{2}$  &  $\frac{3}{4}$ ) ( $1$  &  $1\frac{1}{4}$ ), cover the range, are quickly changed, and are fully adjustable for cutting standard, oversize or undersize threads.



3-jaw self-centering chuck centers the pipe, employing no bushings or grip screws. Threading dies are well above face of the stock and are easy to oil. Chips fall away. For use with American or Whitworth Standard pipe dies, right or left. Special thread pitch dies can be furnished. Tool body is made of slow-annealed unbreakable air furnace malleable iron. Dies are vanadium alloy steel. Furnished with standard pipe handle, extra heavy ratchet and pawl and rustproof finish.

If you are interested in pipe tools, write to the manufacturer, who will be pleased to send a copy of catalog 37.

The Ford Motor Company, 3674 Schaefer Road, Dearborn, Michigan, have just issued a folder, Form 7540, showing their Set No. 16 Johansson Gage Blocks and various accessories for use with the gage blocks. Copies will be mailed free to anyone requesting one and mentioning Hitchcock's Machine Tool Blue Book.

# MARSCHKE

*formerly Van Dorn, Black & Decker*



**HEAVY  
DUTY**

**GRINDERS  
AND  
BUFFERS**

The SELECTIVE SPEED BUFFER with independent spindle drive, as shown in this illustration, is made in three sizes for 5, 7½ and 10 H.P. motors. It is only one of the several types and sizes of MARSCHKE BUFFERS.

The MARSCHKE LINE includes a wide variety of BUFFERS, FLOOR STAND AND SWING FRAME GRINDERS for the different conditions and different requirements of every plant in any industry.

This complete line—formerly made by Van Dorn, Black & Decker—is now being manufactured by

**VONNEGUT MOULDER CORP.**  
**1805 Madison Avenue, Indianapolis, Ind.**

*Send for catalog showing machines with 10" to 30" wheels  
and 1 to 25 H. P. motors*

The Ajax Flexible Coupling Co., Westfield, N. Y., announces the appointment of George C. Ewing as New England representative, with sales offices at 10 High St., Boston, Mass. Mr. Ewing has had long experience in power plant equipment and power transmission. He will handle the complete line of Ajax flexible couplings and the new Ajax reciprocating drive.

---

Bulletin No. 2730-C has just been issued by the Buffalo Forge Company, 161 Mortimer St., Buffalo, New York. This bulletin illustrates and describes their No. 16 sensitive drilling machine, which has undergone a complete progressive change in design. The No. 16 drill is built in three styles: round column, floor type, bench type and pedestal type, and is available in one to six spindles. A copy of this bulletin will be sent to those interested upon request to the Buffalo Forge Company.

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Bulletin No. 54-S has just been issued by the R. G. Haskins Company, 4654 W. Fulton St., Chicago, Ill., covering their power screw drivers. Seven types of equipment are illustrated and described, all designed and built to meet actual manufacturing conditions and to fit in with modern production methods. The simplicity and reliability of the Haskins method of applying screws and nuts, is readily adaptable to assembly operations in practically all manufacturing plants. The Haskins Company will gladly mail a copy of this bulletin to anyone interested in screw driving equipment.

---

## **CARROLL**

### **Universal Dividing Heads**

*Twenty Years of Popularity.*

**"Quality at a reasonable price"**

6-inch, 10 $\frac{1}{4}$ -inch and 12-inch swing. Furnished either Right or Left hand type, for all makes of plain or universal milling machines.

*See your Dealer or write for bulletin showing complete line*

**Wm. Carroll & Son**

**1776 Lexington Ave. (Norwood) Cincinnati, Ohio**

---

**F**ORMERLY  
manufactured by Rock-  
ford Machine  
Tool Co., of  
Rockford, Ill.,  
thousands of  
these drills have  
been installed in  
plants the coun-  
try over, where  
they have been  
giving universal  
satisfaction.

Counterbal-  
anced, eight-  
speed spindle,  
made from high  
carbon special  
steel, has quick  
advance and re-  
turn; positive  
feeds are instant-  
ly available  
while machine  
is in operation;  
all controls with-  
in easy reach.

## DRILLING MACHINES

14'-20'-21'  
Stationary  
Head

24'-28'-32'  
36'  
Sliding  
Head

\* \* \*

Belt or  
Motor Drive

*Write for  
Complete Details*



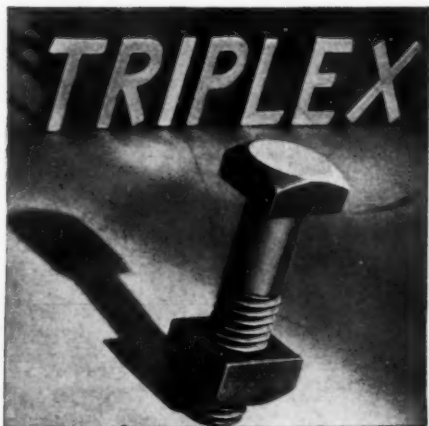
## POWERFUL—SIMPLE— DURABLE—ACCURATE

We have been builders of Drilling Equipment for more than 20 years and, in addition to the above drills, manufacture the Cleereman Automatically Oiled, Anti-Friction, High Speed Drilling, Boring and Tapping Machines; Gang Drills and Special Drilling Machinery.

**CLEEREMAN MACHINE TOOL CO.**

**GREEN BAY, WISCONSIN**

*(Formerly Green Bay Barker Machine Tool Works)*



**TRIPLEX MACHINE BOLTS**

## **UNCOMMON QUALITY**

● **TRIPLEX** puts uncommon precision into machine bolts. Perfect heads, beautifully cut or rolled threads—electric heat-treated and quenched in rust-preventing oil for proper tensile strength.

*Send today for samples, catalog and price list*

**THE TRIPLEX SCREW CO.**

5371 Grant Ave.,

Cleveland, Ohio

# **TRIPLEX**

Complete  
Line of

**CAP AND SET SCREWS, BOLTS AND NUTS**





# ROSS Operating Valves

**for the control of single  
and double acting cylinders**

Poppet Type—Simple in design, lightning-swift in operation—the speediest valve obtainable. Hand, foot and solenoid controlled types.

*Ask for new catalog.*

**Ross Operating Valve Company**  
6484 Epworth Blvd., Detroit, Mich.

# Cuts **LIKE A KNIFE**

**This RIDGID Pipe Cutter with Thin Super-Steel Wheel Blade Rolls Right Through Any Pipe**

The remarkable ability of the **RIDGID** Cutter to cut far more pipe easily and practically without burr lies in its unusual cutter wheel. Thin blade coined from special sheet tool steel, hammered, heat-treated and cast into a hub with steel bearing. Reinforced housing guarantees straight cutting and long life for the tool.

*Ask your Jobber*



→  
No. 1 for 1/8" to 1 1/4" pipe;  
No. 2 for 1/8" to 2" pipe;  
No. 3 for 1" to 3" pipe;  
No. 4 for 2" to 4" pipe.

←  
Made in two sizes:  
No. 00 for 1/8" to 1" tubing.  
No. 0 for 1/2" to 2".  
Super-Steel Cutter Wheel; V-pad smooths tubing ready to solder; handy reamer.



**The Ridge Tool Co., Elyria, Ohio, U.S.A.**

# **RIDGID**

Reg. U. S. Pat. Office

Pipe Wrenches

Cutters

Threaders

Vises

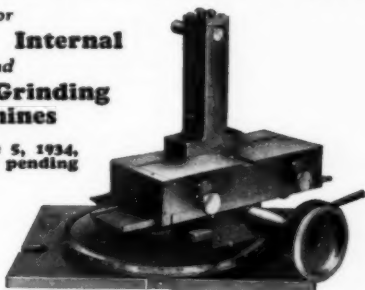
Extractors

# The New B-1 **VINCO**

## **Angle Tangent to Radius Dresser**

*For*  
**External, Internal  
and  
Surface Grinding  
Machines**

**Patented June 5, 1934,  
other patents pending**



**Rear view of dresser.**

The Vinco Dresser eliminates all worry and uncertainty in dressing angles and radii tangent to each other on Abrasive Wheels. It also saves 75% in dressing costs. The Index Plate rotates on precision hardened steel balls assembled under load in a hardened and ground race. This insures free rotation, accuracy and rigidity. It has adjustable stops that can be set at any given angle for production grinding. These stops are fully enclosed so that dirt cannot interfere with their accuracy. The floating clamp also allows the index plate to be set and locked at any angle independent of the stops. The Vinco Dresser is precision made of the finest materials. All parts subject to wear are hardened, ground and lapped and well protected by dust guards. The Index Plate and Vernier are graduated on a Vinco Master Dividing Head to a one ten thousandth of an inch accuracy. It will dress convex radii from 0 to 1.750, and concave radii from 0 to 2.500. The Diamond Holder Slide has a movement of one inch either side of center. With a Vinco special attachment you can dress a complete half circle. You have much to gain and nothing to lose in buying a Vinco Dresser. It is guaranteed to be satisfactory or no obligation.

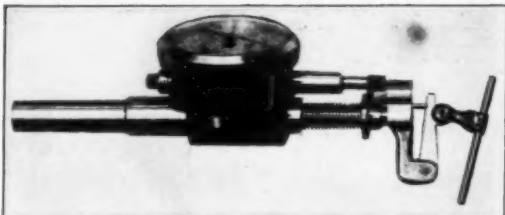
*Send for descriptive circular*

# **VINCO TOOL CO.**

**7348 Central Ave.,**

**Detroit, Mich.**

## SCHWIETERMAN CENTER FINDER



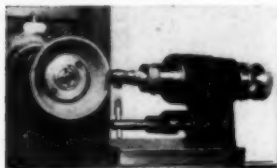
### A Practical, Dependable Tool Room Necessity

Accurately locates the spindle of a jig boring machine, vertical or horizontal milling machine, vertical or horizontal boring mill or drill press or other similar machine in the exact center of a hole, plug or jig button on the work, either for the purpose of re-boring an old hole, getting a location from which to bore additional holes with relation to an old hole, or for locating holes in new work as with jig buttons or master plates.

**GAGE SPECIALISTS.** Plug, ring and special gages. Prompt delivery. Prices submitted by return mail. Send us your blueprints.

*Write for illustrated literature. Representatives wanted.*

**PRECISION GAGE & TOOL CO.,** 320 E. Third St.  
DAYTON, OHIO



*"Little  
Wonder"*

## CUTTER GRINDER

### GRINDS



Spiral end mills

Straddle mills

Cams

Reamers

Square punches

Oval shape punches

Center punches

Counterbores

Angle cutters

Lathe centers

*A fixture you've always needed*

**Price \$87.50**

**F. O. B. Dayton, O.**

**WRITE FOR CIRCULAR**

**See also page 103**

*Shipped on approval to responsible accounts*

**LUTHER MFG. CO.**

**Dept. H1**

**58 Knecht Drive,**

**Dayton, Ohio**

**SAVE  
75%  
HANDFILING**

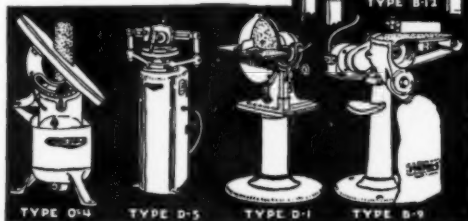
## REDUCE COSTS ON ALL LIGHT GRINDING WORK.

Faster, cleaner and more accurate grinding on hundreds of various jobs is possible when one of these machines is used.

Let us run a test on some of your parts and give you actual figures on your job.

## Put a PORTER-CABLE Belt • Disc • Spindle Grinder on the job and Save Money . . . . .

Every machine shop and tool room needs this equipment for reducing grinding costs.



The above are but a few types of the machines we build. Tell us your requirements and it's dollars to doughnuts we have equipment to meet them exactly.

*Write for details, without obligation*

**The PORTER-CABLE  
MACHINE COMPANY**

Salina St.,

SYRACUSE, N. Y.

# KRW Hydraulic and Sensitive ARBOR PRESSES

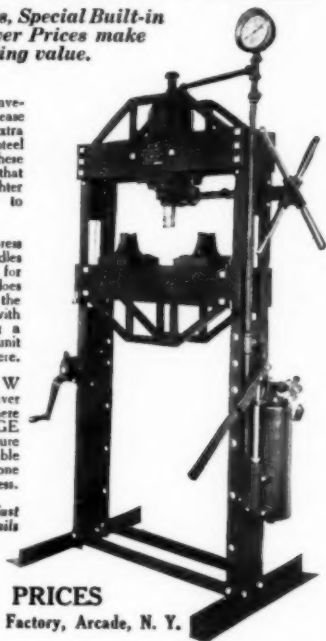
*New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.*

THE last word in convenience, efficiency and ease of operation. Built extra strong and well braced, with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

The importance of this KRW feature as a time and labor saver can be appreciated. Also there is **NO EXTRA CHARGE** for this important built-in feature on a KRW Press. Work table can be raised easily with one hand. A strictly one-man Press.

*Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.*



## PRICES

F. O. B. Factory, Arcade, N. Y.

No. 37—35 ton Hydraulic and Sensitive Arbor Press .....	\$150.00
No. 37E—50 ton Hydraulic and Sensitive Arbor Press .....	180.00
No. 37F—70 ton Hydraulic and Sensitive Arbor Press .....	300.00
Gauge and fittings, \$15.00 extra on all presses.	

## K. R. WILSON

10-16 Lock Street, Buffalo, N. Y., U.S.A.

EXPORT DEPARTMENT  
90 West St., New York, N. Y.

WEST COAST BRANCH  
722 Mateo St., Los Angeles



**This No. 16 Unishear zips through 16 gauge hot rolled steel, other materials in proportion. Speed, as fast as you can feed it. Plugs in any light socket. Follows curves, angles, cuts any pattern. Leaves smooth finished edges. Other portable Unishears with capacities of 18 and 14 gauge hot rolled steel; stationary Unishears that cut up to 1/4" boiler plate. Ask your dealer for demonstration, or write for descriptive catalog. Stanley Electric Tool Division, The Stanley Works, 141 Elm St., New Britain, Conn.**

**STANLEY UNISHEARS**

**THE ELECTRICALLY DRIVEN HAND SHEARS**

# WALKER — TURNER

## HEAVY DUTY FLEXIBLE SHAFT GRINDER



FOR ONLY

**\$62.50**

as shown,  
with special  
 $\frac{1}{2}$  h. p. capaci-  
tator type  
motor,  
110 v., 60 cy.

*"The Tool of A  
Thousand Uses"*

A full half horse power motor, SKF ball bearings, motor that swivels and locks in any position, telescopic column that can be raised from 42" to 57" in height, deep base that serves as tool tray—these are some of the features that put this grinder in a class by itself.

It is a real production tool that can be used to advantage anywhere in the shop for drilling, grinding, cleaning, polishing or a multitude of jobs. At this low price—only \$62.50—you will agree—it's a lot of tool for the money.

*Write for  
complete details*

**WALKER - TURNER CO., Inc.**  
1717 Berckman St., Plainfield, N. J.

*Engineered* **POWER TOOLS**



"We have two Doall machines in constant use and on some of our complicated grille dies we can saw them out in about one fifth of the time with less filing and a straighter die wall". Mr. Leroy E. Dahlberg, Tool Room Sup't. Crowe Name Plate & Mfg. Co., Chicago, Ill.

## CONTINUOUS INTERNAL AND EXTERNAL

### Sawing — Filing and Polishing

For internal sawing you weld the saw (after one end has been put thru a starting hole). So simple a child can do it—with the built-in, semi-automatic brazing unit of the DOALL. Time: less than three minutes. The braze is stronger than the rest of the saw.

*Write for Contour  
Sawing Hand-Book.*



TRADE MARKS REGISTERED  
PATENTED & PAT. PENDING



**Hand-book  
on Contour  
Sawing—  
FREE**

1. Tear this out . . . .
2. Attach to your letter-head.
3. Give your name and position, and mail to

**CONTINENTAL MACHINE SPECIALTIES, INC.**  
1301 Washington Ave., South,  
MINNEAPOLIS

# ADJUSTABLE WHILE RUNNING!

The Precision Universal Tool Head is not just an improved "boring tool." It is far more than that. As the name implies, it is a truly universal tool head that not only bores, but faces, recesses, counterbores, mills, undercuts, turns outside diameters. It handles an infinite range of "headache" jobs that are utterly impossible with any other tool.

**These things the obsolete wrench-adjusted "offset boring tool" cannot do because it cannot be adjusted while running.**

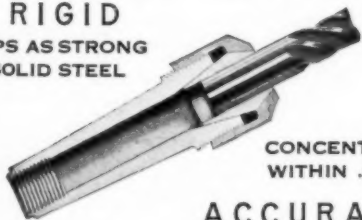
Let us send you bulletins and additional information regarding this indispensable tool. Cost less because one compact size handles all diameters from 1/16" to 16", eliminating the need for various sizes required in old-time boring tools.



**THE PRECISION TOOL CO.**  
**BRIDGEPORT, CONN.**

## UNIVERSAL COLLET CHUCKS RIGID

**GRIPS AS STRONG  
AS SOLID STEEL**



**CONCENTRIC  
WITHIN .001**

**ACCURATE**

WRITE FOR CATALOG

**UNIVERSAL ENGINEERING CO.**  
**FRANKENMUTH, MICHIGAN**

# A Modern Tool



## The NEW 17 in. DELTA DRILL PRESS

Read the brief outline of the specifications of this remarkable tool. See if you do not agree it is the greatest drill press value in years. Check it point for point against any drill press you have ever seen. Notice its many new features and special advantages. You will find many ways that this new tool can save money for you.

Five Speeds: (385, 600, 935, 1450, 2240 R.P.M.)  
Floating Drive: Pre-loaded double-seal ball bearings; 16 tooth splined spindle; Table-Raising gear; Head-Raising gear; Tilting or production table; Completely enclosed belt; Safety spring wind; Foot power feed. Separate drill press heads available.

*Write for name of  
nearest Delta dealer  
and complete  
descriptive literature*

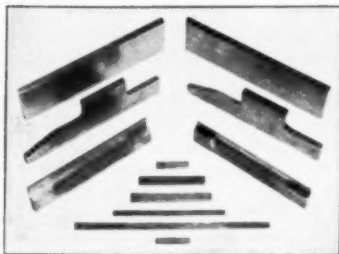
Overall dimensions 66" high; 18" wide; 27" front to rear; Tilting table 11" by 12". Production table 12½" by 17" surface. Floor base 10" by 13¾" table surface. Shipping weight 450 lbs.

### DELTA MANUFACTURING CO.

615 E. Vienna Ave.,

Milwaukee, Wisconsin

## A New — Lower Priced TUNGSTEN CARBIDE ALLOY



**GREATER  
TOUGHNESS**  
**LONGER  
LENGTHS**

Apply this super-hard material to your fast-wearing surfaces and save time and money by requiring fewer regrinds, replacements, machine shutdowns, and lower maintenance expenses.

Pieces available in all shapes and IN LENGTHS UP TO 12". Increase the life and utility of your Centerless Grinder Rests (see insert), Guides, Wearing Plates, Plug and Ring Gauges, Dies, Sand Blast Nozzles, etc., many times.

*Send sketch of application for quotation.*

**Metal Carbides Corp.,** 107 E. Indianapolis Ave.,  
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## THE STANDARD "SOFT" HAMMERS of INDUSTRY



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**Chicago Rawhide Hammers**

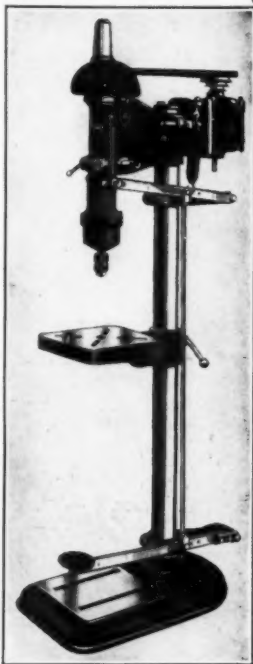
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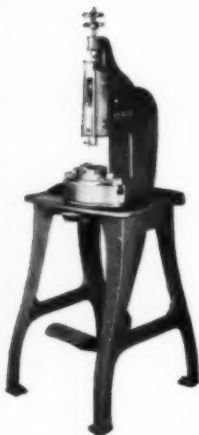
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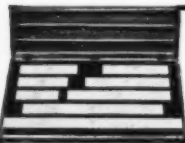
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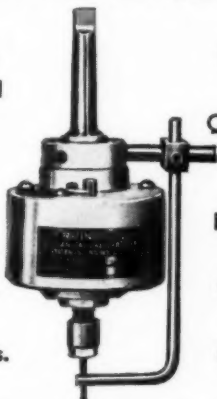
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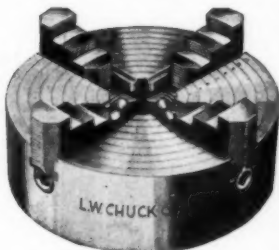
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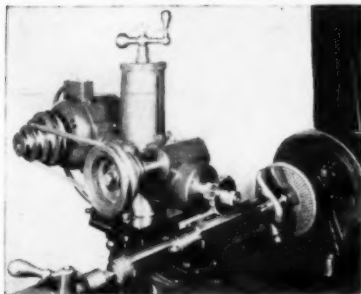
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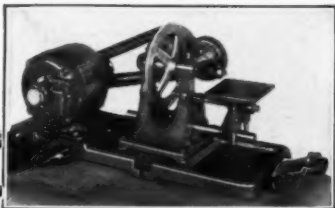


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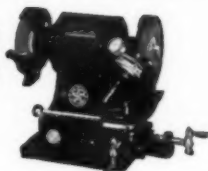
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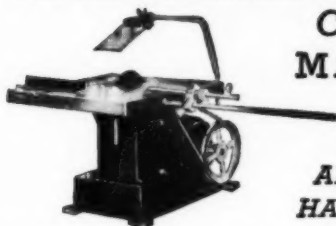
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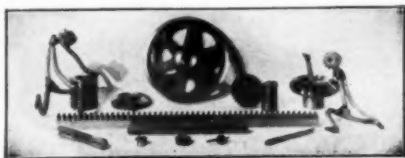
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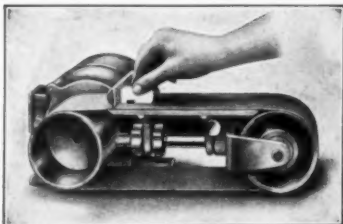
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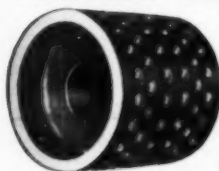
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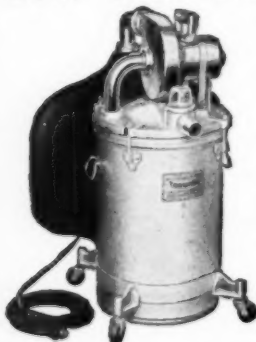
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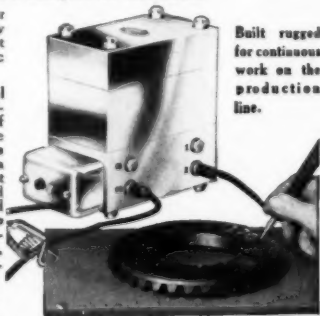
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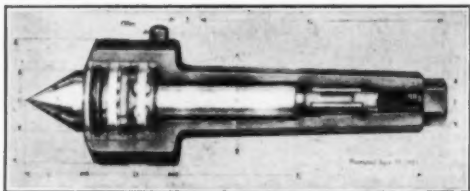
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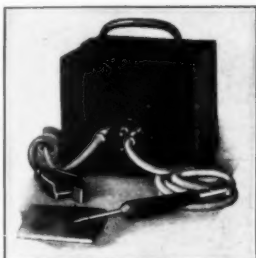
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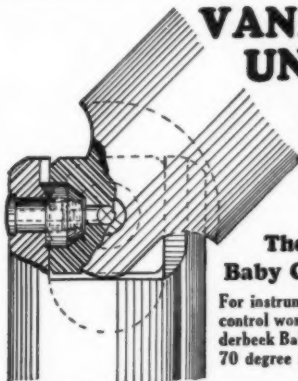
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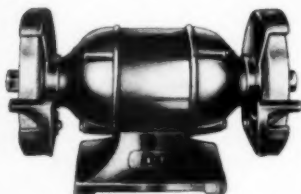
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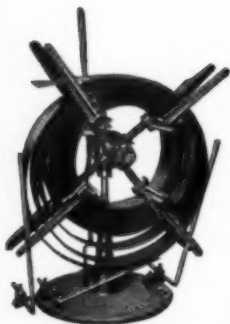
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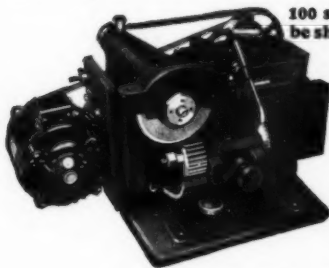
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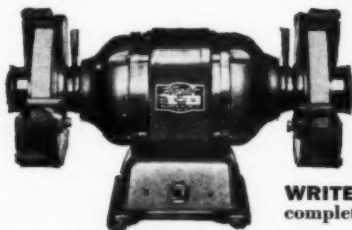


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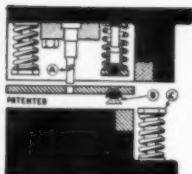


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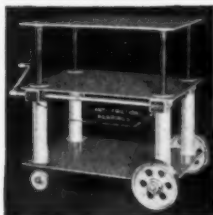
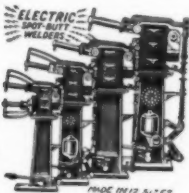
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The Attachments  
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A simple single-  
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These holes are conven-  
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# VISE

Fig. 1 With Jig  
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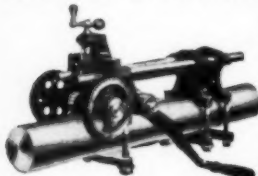
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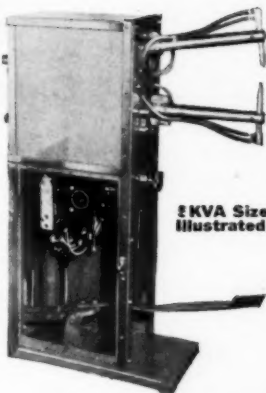
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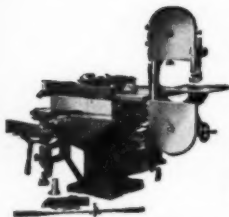
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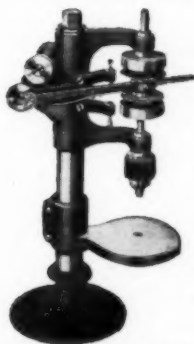
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Galland-Henning Mfg. Co., Milwaukee, Wis.

## Air Velocity Meters

Illinois Testing Laboratories, 150 W. Austin Ave., Chicago, Ill.

## Angle Dressers

Vineo Tool Co., Detroit, Mich.

## Angle Plates, Adjustable

McMahon Co., Frank, Dayton, Ohio

## Arbor Presses

Atlas Press Co., Kalamazoo, Mich.  
Sheldon Machine Co., 3255 Cottage Grove Ave., Chicago, Ill.  
Wilson E. R., Buffalo, N. Y.

## Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.  
Sundstrand Machine Tool Co., Rockford, Ill.

## Baling Presses

Galland-Henning Mfg. Co., Milwaukee, Wis.

## Band Saw Machines, for Metal

Armstrong-Bloom Mfg. Co., 341 N. Francisco Ave., Chicago  
Grob Bros., West Allis, Wis.  
Oliver Machinery Co., Grand Rapids, Mich.  
Porter-Cable Machine Co., Racine, N. Y.  
Tannowitz Works, Grand Rapids, Mich.  
Wells Mfg. Co., Three Rivers, Mich.

## Band Saws, Open End

Grob Bros., West Allis, Wis.

## Bar Cutters

Buffalo Forge Company, Buffalo, N. Y.

## Bearings

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## Belt Lacing

Armstrong-Bray & Co., 315 N. Sheldon St., Chicago, Ill.

## Belt Sanders

Skilaw, Inc., 3304 Elston Av., Chicago, Ill.

## Belts, V-Type

Delta Mfg. Co., Milwaukee, Wis.

## Bench Lathes

Sheldon Machine Co., 3255 Cottage Grove Ave., Chicago, Ill.  
Hardinge Brothers, Inc., Elmira, N. Y.

## Bench Punches

Whitney Mfg. Co., W. A., Rockford, Ill.

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Buffalo Forge Company, Buffalo, N. Y.  
Leuthwaite Mch. Co., T. H. 311 E. 47th, N. Y.

## Bins

Stacklin Corp., Providence, R. I.

## Blowers

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Buffalo Forge Co., Buffalo, N. Y.  
Clements Mfg. Co., 6885 Naragansett, Chicago  
General Blower Co., 401 N. Peoria St., Chicago  
Standard Electrical Tool Co., Cincinnati, O.

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Skilaw, Inc., 3304 Elston Av., Chicago, Ill.

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Rigid Tool Holder Co., Detroit, Mich.  
Russell Boring Bar Co., Middletown, Ohio

## Boring Heads

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Rickert-Shafer Co., Erie, Pa.

## Boring Machines

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H. & L. Tonia, Nicetown, Phila., Pa.  
Rickert-Shafer Co., Erie, Pa.

## Broaches, Splines and Square

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Dreis & Krump Mfg. Co., 7440 So. Loomis Blvd., Chicago, Ill.

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## Briquetting Machines

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Valley Electric Corp., St. Louis, Mo.  
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## Bushings, Steel

Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.  
Baumbech Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago  
Universal Eng. Corp., Frankmouth, Mich.

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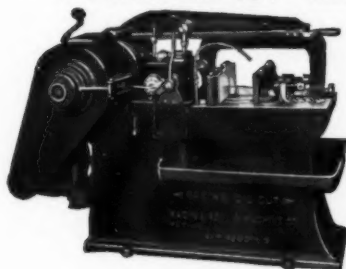
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Cullman Wheel Co., 1818 Altgeld St., Chicago

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**Chucks**  
Etico Tool Co., 594 Johnson Av., Brooklyn, N. Y.  
Heuser Mfg. Co., 1638 No. Paulina St., Chicago, Ill.  
Universal Eng. Corp., Frankenmuth, Mich.

**Chucks, Automatic**  
Procunier Safety Chuck Co., 14 S. Clinton St., Chicago

**Chucks, Collet**  
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**Chucks, Drill and Tap**  
Errington Mach. Labo. Staten Island, N. Y.  
Etico Tool Co., Brooklyn, N. Y.  
Hartford Special Mch. Co., Hartford, Conn.  
Procunier Safety Chuck Co., 14 S. Clinton St., Chicago

**Chucking Fingers**  
Modern Collet & Mch. Co., Ecorse, Mich.  
Morrison Mach. Products, Inc., Elmira, N. Y.

**Chucks, Quick Change**  
Procunier Safety Chuck Co., 14 S. Clinton St., Chicago

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Carroll Mfg. Co., L. W., Cincinnati, O.

**Cold Saws**  
Burke Machine Tool Co., Connecticut, Ohio

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Sutton Tool Co., Detroit, Mich.  
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**Collets, Spring**  
Modern Collet & Mch. Co., Ecorse, Mich.  
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Loverjoy Tool Works, 5038 W. Lake St., Chicago  
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Luma Electric Equipment Co., Toledo, Ohio  
L. W. Chuck Co., Toledo, Ohio

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American Tool Works, Inc., Hartford, Conn.  
Hamilton Tool Company, Hamilton, Ohio  
Rickert-Shafer Co., Erie, Pa.

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Oliver Machinery Co., Grand Rapids, Mich.  
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Baumbach Mfg. Co., E. A., 1812 So. E. E. Avenue, Chicago

**Die Sinking and Engraving Machines**  
Pratt & Whitney Co., Hartford, Conn.

**Dividing Heads**  
Wm. Carroll & Son, Norwood, Cincinnati, O.

**Dowel Pins, Steel**  
Aeme Industrial Co., 419 N. Carpenter St., Chicago, Ill.  
Baumbach Mfg. Co., E. A., 1812 So. E. E. Avenue, Chicago

**Dressers, Angle Tangent to Radius**  
Venco Tool Co., Detroit, Mich.

**Drill and Tap**  
Etico Tool Co., 594 Johnson Av., Brooklyn, N. Y.

**Drill Bushings**  
Universal Eng. Corp., Frankenmuth, Mich.

**Drill Holders**  
Chicago Tool & Engr. Co., 8280 So. Chicago Ave., Chicago, Ill.

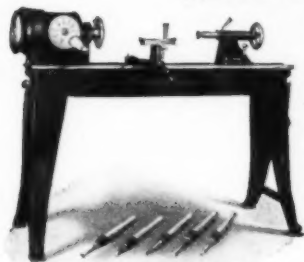
**Drill Table Vices**  
Modern Machine Tool Co., Jackson, Mich.

**Drills, Air**  
Rotor Air Tool Co., Cleveland, Ohio

**Drills, Electric**  
Skinner, Inc., 3304 Elston Av., Chicago, Ill.  
SpeedWay Mfg. Co., 1822 So. 62nd Ave., Chicago, Ill.  
Standard Electrical Tool Co., Cincinnati, O.  
Wedack Electric Tool Corp., 2629 W. Huron St., Chicago, Ill.

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1848 S. KILBOURN AVE. CHICAGO, ILL.

# Classified Finding Index

## Drill Grinders

Star Mch. & Eng. Co., Bloomfield, N. J.

## Drill Jigs, Special

Heuser Mfg. Co., 1088 No. Paulina St., Chicago, Ill.

## Drill Jigs, Universal

Heuser Mfg. Co., 1088 No. Paulina St., Chicago, Ill.

## Drilling Attachments, High Speed

Graham Manufacturing Co., Providence, R. I.  
Henry & Wright Mfg. Co., Hartford, Conn.

## Drilling Machines, Bench

Atlas Press Co., Kalamazoo, Mich.  
Buffalo Forge Company, Buffalo, N. Y.  
Cleereman Mch. Tool Co., Green Bay, Wis.  
Sloan & Chase Mfg. Co., Inc., Kearny, N. J.

## Drilling Machines, Multiple Spindle

Buffalo Forge Co., Buffalo, N. Y.  
Henry & Wright Mfg. Co., Hartford, Conn.

## Drilling Machines, Portable Electric

Shilaw, Inc., 3304 Kinton Av., Chicago, Ill.  
Speedway Mfg. Co., 1822 So. 62nd Ave., Chicago, Ill.  
Strand Co., N. A., 5001 N. Lincoln Street, Chicago, Ill.  
Syntro Company, Pittsburgh, Pa.  
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

## Drilling Machines, Post

Buffalo Forge Co., Buffalo, N. Y.  
Henry & Wright Mfg. Co., Hartford, Conn.

## Drilling Machines, Radial

Henry & Wright Mfg. Co., Hartford, Conn.  
Western Machine Tool Wks., Holland, Mich.

## Drilling Machines, Sensitive

Atlas Press Co., Kalamazoo, Mich.  
Buffalo Forge Company, Buffalo, N. Y.  
Burke Machine Tool Co., Conneaut, Oh.  
Henry & Wright Mfg. Co., Hartford, Conn.

## Drilling Machines, Vertical

Atlas Press Co., Kalamazoo, Mich.  
Buffalo Forge Company, Buffalo, N. Y.  
Henry & Wright Mfg. Co., Hartford, Conn.

## Drives, Lathes

Cutman Wheel Co., 1380 Altgeld St., Chgo.  
Hardinge Brothers, Inc., Elmira, N. Y.

## Electric Blowers

Reuser Elect. Co., 846 Blackhawk St., Chgo.  
Buffalo Forge Co., Buffalo, N. Y.  
Clements Mfg. Co., 6650 N. Marquette, Chicago

## Electric Motors with Integral Brakes

Star Mch. & Eng. Co., Bloomfield, N. J.

## Electrical Instruments

Illinois Testing Laboratories, Inc., 180 W. Austin Ave., Chicago

## Elevating Tables

Hamilton Tool Company, Hamilton, Ohio  
Midwest Tool & Engineering Co., Dayton, O.

## Emery Stands

Carroll Mfg. Co., L. W., Cincinnati, O.

## Emery Wheel Dressers and Cutters

Western Tool & Mfg. Co., Springfield, O.

## End Mills

Progressive Tool & Cutter Co., Ferndale, Mich.  
Putnam Tool Co., Detroit, Mich.  
Weldon Tool Co., Cleveland, Ohio

## Etching Machines, Electric

Brewster Co. William, 50 Church St., N. Y. C.  
Grinding Machinery Co., Detroit, Mich.  
Luma Electric Equipment Co., Toledo, Ohl.

## Exhaust Blowers

Buffalo Forge Co., Buffalo, N. Y.

## Experimental Work

American Tool Works, Inc., Hartford, Conn.

## Feeder Tubes

Sutton Tool Co., Detroit, Mich.

## Feed Fingers

Morrison Mach. Products, Inc., Elmira, N. Y.

## Feed Fingers for Auto. Screw Mchs.

Modern Collet & Machine Co., Ecorse, Mich.  
Sutton Tool Co., Detroit, Mich.

## Files

Grobet File Co., 2 Park Place, New York City

## Files, Rotary

White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

## Filing Machines

Continental Mch. Specialties, Minneapolis  
Grob Bros., West Allis, WI.  
Oliver Instrument Co., Adrian, Mich.

## Filing Room Equipment

Wardwell Manufacturing Co., Cleveland, O.

## Flexible Couplings

Levejoy Tool Wks., 4987 W. Lake St., Chgo.

## Flexible Shafts and Accessories

Wysenbeek & Staff, Inc., 642 Washington Blvd., Chicago

## Flexible Shaft Couplings

Levejoy Tool Wks., 4987 W. Lake St., Chgo.

## Flexible Shaft Machinery

Hacking Co., N. G., 4654 W. Fulton, Chgo.  
Pratt & Whitney Co., Hartford, Conn.  
Walker-Turner Co., Inc., Plainfield, N. J.  
Wysenbeek & Staff, Inc., 642 Washington Blvd., Chicago

## Floating Holders

Gairing Tool Co., Detroit, Mich.

## Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

## Furniture, Machine Shop

Western Tool & Mfg. Co., Springfield, O.

## Gage Blocks, Precision

Ford Motor Co., Johnsonson Div., Dearborn, Mich.

## Gages

Federal Products Corp., Providence, R. I.  
Precision Gage & Tool Co., Dayton, Ohio  
Swedish Gage Co. of Amer., Detroit, Mich.  
United Precision Products Co., 4618 W. Huron St., Chicago, Ill.

## Gages, Chrome Plated

Vinco Tool Co., Detroit, Mich.

## Gages, Gears, Spur and Helical

Vinco Tool Co., Detroit, Mich.

## Gages, Pin, Plug, Ring and Snap

American Tool Works, Inc., Hartford, Conn.  
Precision Gage & Tool Co., Dayton, Ohio  
United Precision Products Co., 4618 W. Huron St., Chicago, Ill.

## Gages, Taper

Precision Gage & Tool Co., Dayton, Ohio  
Hartford Special Mch. Co., Hartford, Conn.  
Vinco Tool Co., Detroit, Mich.

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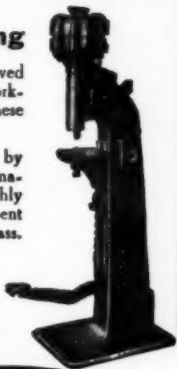
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**C. E. Station, Bridgeport, Conn.**



# Classified Finding Index

## Gear Cutters

Brown & Sharpe Mfg. Co., Providence, R. I.

## Gears

Abart Gear & Mch. Co., 4822 W. 18th St., Cicero, Ill.

Chicago Gear Wks., 769 W. Jackson, Chgo.

Massachusetts Gear & Tool Co., Woburn, Mass.

Taylor Machine Co., Cleveland, Ohio

## Gears, Master

Vince Tool Co., Detroit, Mich.

## Gear Motors

Star Mch. & Eng. Co., Bloomfield, N. J.

## Generators

Chicago Electric Co., 1336 W. 22nd St., Chicago, Ill.

Janette Mfg. Co., 552 W. Monroe St., Chgo.

Star Mch. & Eng. Co., Bloomfield, N. J.

## Grinders, Air

M-B Products, Detroit, Mich.

Rotor Air Tool Co., Cleveland, Ohio

## Grinders, Bench

Baldor Electric Co., St. Louis, Mo.

Carroll Mfg. Co., L. W., Cincinnati, O.

Hammond Machinery Builders, Kalamazoo, Mich.

Vonnegut Moulder Corp., Indianapolis, Ind.

## Grinders, Disc

Oliver Machinery Co., Grand Rapids, Mich.

Porter-Cable Machine Co., Syracuse, N. Y.

Wyzenbeek & Staff, Inc., 642 Washington Blvd., Chicago

## Grinders, Electric

Chicago Wheel & Mfg. Co., M. C. Tool Div., 1101 W. Monroe St., Chicago, Ill.

Shilesaw, Inc., 8304 Elston Av., Chicago, Ill.

Standard Electrical Tool Co., Cincinnati, O.

## Grinders, Electric Bench

Baldor Electric Co., St. Louis, Mo.

Valley Electric Corp., St. Louis, Mo.

## Grinder, Flexible Shaft

Haskins Co., R. G., 4654 W. Fulton, Chgo.

Mall Tool Co., 7742 S. Chicago Ave., Chicago

N. A. Strand & Co., 5001 N. Lincoln, Chgo.

## Grinding Machines, Floor

Hammond Machinery Builders, Kalamazoo, Mich.

## Grinders, Hand

Chicago Wheel & Mfg. Co., M. C. Tool Div., 1101 W. Monroe St., Chicago, Ill.

M-B Products, Detroit, Mich.

Rotor Air Tool Co., Cleveland, Ohio

Shilesaw, Inc., 8304 Elston Av., Chicago, Ill.

## Grinders, Heavy Duty

Vonnegut Moulder Corp., Indianapolis, Ind.

## Grinders, High Speed

Chicago Wheel & Mfg. Co., M. C. Tool Div., 1101 W. Monroe St., Chicago, Ill.

Mall Tool Co., 7742 S. Chicago Ave., Chicago

M-B Products, Detroit, Mich.

Walker-Turner Co., Inc., Plainfield, N. J.

## Grinders, Pedestal Electric

Baldor Electric Co., St. Louis, Mo.

Valley Electric Corp., St. Louis, Mo.

## Grinders, Swing Frame

Vonnegut Moulder Corp., Indianapolis, Ind.

## Grinders and Polishers, Belt

Oliver Machinery Co., Grand Rapids, Mich.

Porter-Cable Machine Co., Syracuse, N. Y.

## Grinding Attachments, Drill

Carlson Mfg. Co., C. H., Minneapolis, Minn.

Oliver Instrument Co., Adrian, Mich.

## Grinding, Centerless (Contract)

Commercial Centerless Grinding Co., 6538

Carnegie Ave., Cleveland, Ohio

## Grinding Machines, Belt

Armco Co., Milwaukee, Wis.

Production Machine Co., Greenfield, Mass.

Walls Sales Corp., 96 Warren St., New York

## Grinding Machines, Cutter, Reamer and Tool

Brown & Sharpe Mfg. Co., Providence, R. I.

National Machine Tool Co., Racine, Wis.

Oliver Instrument Co., Adrian, Mich.

## Grinding Machines, External

Chicago Tool & Engr. Co., 8380 So. Chicago

Ave., Chicago, Ill.

## Grinding Machines, Floor

Standard Electrical Tool Co., Cincinnati, O.

## Grinding Machines, Internal

National Machine Tool Co., Racine, Wis.

## Grinding Machines, Portable Electric

Chicago Tool & Engr. Co., 8380 So. Chicago

Ave., Chicago, Ill.

Chicago Wheel & Mfg. Co., M. C. Tool Div., 1101 W. Monroe St., Chicago, Ill.

R. G. Haskins Co., 4654 W. Fulton, Chicago

Mall Tool Co., 7742 S. Chicago Ave., Chicago

National Machine Tool Co., Racine, Wis.

Pratt & Whitney Co., Hartford, Conn.

Strand Co., N. A., 5001 N. Lincoln St., Chgo

White Dental Mfg. Co., 10 E. 40th Street,

New York, N. Y.

## Grinding Machines, Tool

Hammond Machinery Builders, Kalamazoo,

Mich.

## Grinding Machines, Universal

Brown & Sharpe Mfg. Co., Providence, R. I.

## Grinding Wheels

Chicago Wheel & Mfg. Co., M. C. Tool Div., 1101 W. Monroe St., Chicago, Ill.

## Grinding Wheels, Mounted

Chicago Wheel & Mfg. Co., M. C. Tool Div., 1101 W. Monroe St., Chicago, Ill.

## Grinding Wheels On Shanks

Chicago Wheel & Mfg. Co., M. C. Tool Div., 1101 W. Monroe St., Chicago, Ill.

## Hack Saw Blades

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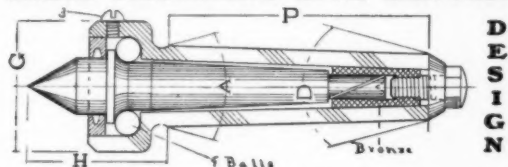
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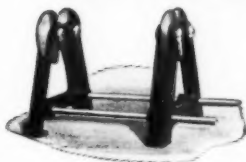
2000 Witherell St.  
Detroit, Michigan

# Classified Finding Index

- Hack Saw Machines**  
Armstrong-Bloom Mfg. Co., 841 N. Francisco  
Av., Chicago
- Hammers, Electric**  
Syrton Company, Pittsburgh, Pa.  
Wedack Electric Tool Corp., 2625 W. Huron  
St., Chicago, Ill.
- Hammers, Turners**  
Whitney Mfg. Co., W. A., Rockford, Ill.
- Hand Punches**  
Whitney Mfg. Co., W. A., Rockford, Ill.
- Hammers, Mallets and Malls**  
Chicago Rawhide Mfg. Co., 1200 Elston Av.,  
Chicago, Ill.
- Hand Saws, Portable Electric**  
Skilaw, Inc., 3804 Elston Av., Chicago, Ill.  
Syrton Company, Pittsburgh, Pa.
- Hand Screw Machines, Precision  
Bench Type**  
Hardinge Brothers, Inc., Elmira, N. Y.
- Hangers, Ball, Roller and Babbitt**  
Chicago Die Casting Mfg. Co., 2502 W.  
Monroe St., Chicago
- Heads, Boring**  
Fynn Manufacturing Co., Detroit, Mich.
- Hole Cutters**  
Wynonbeck & Staff, Inc., 543 Washington  
Bld., Chicago
- Hollow Adjustable Mills**  
Gairing Tool Co., Detroit, Mich.
- Hydraulic Valves**  
Galland-Henning Mfg. Co., Milwaukee, Wis.
- Index Centers**  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Wm. Carroll & Son, Norwood, Cincinnati, O.
- Indicating Dials**  
Federal Products Corp., Providence, R. I.
- Indicators, Surface Test**  
Beich Mfg. Co., J. R., Dayton, Ohio
- Jigs and Fixtures**  
American Tool Works, Inc., Hartford, Conn.  
Hamilton Tool Company, Hamilton, Ohio  
Hartford Special Mch. Co., Hartford, Conn.
- Keyseating Machines**  
Burr & Son, John T., Brooklyn, N. Y.
- Knurls and Holders, for Turrets**  
Graham Manufacturing Co., Providence, R. I.
- Lathe Centers**  
Wiglit Tool Holder Co., Detroit, Mich.  
Sturdimatic Tool Co., Detroit, Mich.
- Lathe Drives**  
Culman Wheel Co., 1859 Altgeld St., Chgo.  
Hardinge Brothers, Inc., Elmira, N. Y.
- Lathes, Bench**  
Atlas Press Co., Kalamazoo, Mich.  
Delta Mfg. Co., Milwaukee, Wis.  
Hardinge Brothers, Inc., Elmira, N. Y.  
Rivett-Lathe & Grinder Inc., Brighton, Boston  
Sheldon Machine Co., 3255 Cottage Grove  
Ave., Chicago, Ill.  
Sloan & Chase Mfg. Co., Kearny, N. J.  
South Bend Lathe Works, South Bend, Ind.
- Lathes, Back Geared**  
Rivett-Lathe & Grinder, Inc., Brighton, Boston  
South Bend Lathe Works, South Bend, Ind.
- Lathes, Brake Drum**  
South Bend Lathe Works, South Bend, Ind.
- Lathes, Engine**  
Porter-Cable Machine Co., Syracuse, N. Y.  
Sebastian Lathe Co., Cincinnati, Ohio  
South Bend Lathe Works, South Bend, Ind.
- Lathes, Gap Bed**  
South Bend Lathe Works, South Bend, Ind.
- Lathes, Manufacturing**  
Sundstrand Machine Tool Co., Rockford, Ill.
- Lathes, Polishing and Buffing**  
Hammond Machinery Builders, Kalamazoo,  
Mich.
- Lathes, Precision Bench**  
Hardinge Brothers, Inc., Elmira, N. Y.  
Sloan & Chase Mfg. Co., Kearny, N. J.  
South Bend Lathe Works, South Bend, Ind.
- Lathes, Precision Bench Screw  
Cutting**  
Hardinge Brothers, Inc., Elmira, N. Y.  
South Bend Lathe Works, South Bend, Ind.
- Lathes, Screw Cutting**  
South Bend Lathe Works, South Bend, Ind.
- Lathes, Speed**  
Schauer Machine Co., Cincinnati, Ohio
- Layout Plates**  
Challenge Mch. Co., Grand Haven, Mich.
- Leader Pins, Steel**  
Acme Industrial Co., 419 N. Carpenter St.,  
Chicago, Ill.
- Leather Belting, All Types**  
Chicago Rawhide Mfg. Co., 1200 Elston Av.,  
Chicago, Ill.
- Leather Oil Retainers**  
Chicago Rawhide Mfg. Co., 1200 Elston Av.,  
Chicago, Ill.  
Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.
- Leather Pkg., Hydraulic & Pneumatic**  
Chicago Rawhide Mfg. Co., 1200 Elston Av.,  
Chicago, Ill.
- Live Lathe Centers**  
Sturdimatic Tool Co., Detroit, Mich.
- Lockers**  
Norransett Mch. Co., Pawtucket, R. I.
- Lubricators, Automatic**  
Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.  
M. H. Products Co., Detroit, Mich.  
Norgren Co., C. A., Denver, Colo.
- Mandrels, Saw and Grinding**  
Chicago Die Casting Mfg. Co., 2502 W.  
Monroe St., Chicago
- Mandrels, Expanding**  
W. H. Nicholson & Co., Wilkes-Barre, Pa.  
Western Tool & Mfg. Co., Springfield, D.
- Micrometers**  
Swedish Gage Co. of Amer., Detroit, Mich.
- Milling Attachments**  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Canton, Ohio  
Wm. Carroll & Son, Norwood, Cincinnati, O.  
Porter-Cable Machine Co., Syracuse, N. Y.
- Milling Machines, Bench**  
Burke Machine Tool Co., Canton, Ohio  
Hardinge Brothers, Inc., Elmira, N. Y.  
Sloan & Chase Mfg. Co., Kearny, N. J.  
Sundstrand Machine Tool Co., Rockford, Ill.



# ANDERSON Improved Balancing Ways



Four Chilled iron discs rotate on sensitive special bearings.

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Swing	Greatest Distance Between Standards	Capacity in lbs.
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72 in.	66 in.	5,000
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## Classified Finding Index

**Milling Machines, Precision Bench**  
Brown & Sharpe Mfg. Co., Providence, R.I.  
Hardinge Brothers, Inc., Elmira, N. Y.  
Sloan & Chace Mfg. Co., Kearny, N. J.

**Milling Machines, Hand**  
Burke Machine Tool Co., Cincinnati, Ohio  
Sundstrand Machine Tool Co., Rockford, Ill.

**Milling Machines, Plain**  
Brown & Sharpe Mfg. Co., Providence, R.I.  
Burke Machine Tool Co., Cincinnati, Ohio  
Sundstrand Machine Tool Co., Rockford, Ill.

**Motors**  
Chicago Electric Co., 1336 W. 22nd St., Chicago, Ill.  
Janette Mfg. Co., 552 W. Monroe St., Chgo.

**Motors, Small Universal**  
Speedway Mfg. Co., Cicero, Ill.

**Motor-Generator Sets**  
Chicago Electric Co., 1336 W. 22nd St., Chicago, Ill.  
Janette Mfg. Co., 552 W. Monroe St., Chgo.

**Motor Drives, Universal**  
Cushman Wheel Co., 1359 Altgeld St., Chgo.

**Motors, Electric Ball Bearing**  
Valley Electric Corp., St. Louis, Mo.

**Moulds & Ladles, Hammer and Vise.**  
Johnston Tool Co., East Providence, R. I.

**Multiple Oilers**  
Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo

**Nibbling Machines**  
Libert Machine Co., Green Bay, Wis.  
National Machine Tool Co., Racine, Wis.

**Nitrided Products**  
Universal Eng. Corp., Frankenmuth, Mich.

**Oil Cans**  
Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.  
Tucker, W. W. & C. F., Hartford, Conn.

**Oil Gauges**  
Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.

**Oil and Grease Seals**  
Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.

**Oil Hole Covers**  
Tucker, W. W. & C. F., Hartford, Conn.

**Operating Valves**  
Galland-Henning Mfg. Co., Milwaukee, Wis.

**Packing, Hydraulic**  
Chicago Hawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.

**Pillow Blocks**  
Chicago Die Casting Mfg. Co., 2502 W. Monroe St., Chicago, Ill.

**Pins and Lacing for Belting**  
Chicago Hawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.

**Pins, Leader And Dowel**  
Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.  
Baumbach Mfg. Co., E. A., 1812 So. Kilbourn Ave., Chicago

**Pipe Cutters**  
Ridge Tool Co., Elkhart, Ohio

**Pipe Vises**  
Ridge Tool Co., Elkhart, Ohio

**Pipe Wrenches**  
Ridge Tool Co., Elkhart, Ohio

**Plug Gauges**  
Precision Gage & Tool Co., Dayton, Ohio  
United Precision Products Co., 4618 W. Huron St., Chicago, Ill.

**Point Thinning Machines**  
Oliver Instrument Co., Adrian, Mich.

**Press Brakes**  
Allsteel Press Co., 12015 S. Peoria St., Chicago  
Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.

**Press Feeds**  
Littell Machine Co., F. J., 4125 Ravenswood Ave., Chicago, Ill.  
Wittak Mfg. Co., 4309 W. 24th Place, Chgo.

**Presses, Arbor**  
Atlas Press Co., Kalamazoo, Mich.  
W. H. Nicholson & Co., Wilkes-Barre, Pa.  
Sheldon Machine Co., 2255 Cottage Grove Ave., Chicago, Ill.  
Wilson, E. R., Buffalo, N. Y.

**Presses, Bench**  
Rockford Iron Works, Rockford, Ill.

**Presses, Foot**  
Rockford Iron Works, Rockford, Ill.

**Presses, Inclined**  
Federal Press Co., Elkhart, Indiana  
Rockford Iron Works, Rockford, Ill.

**Presses, Power**  
Allsteel Press Co., 12015 S. Peoria St., Chicago  
Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.  
Federal Press Co., Elkhart, Indiana  
Rockford Iron Works, Rockford, Ill.

**Presses, Punch**  
Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.  
Henry & Wright Mfg. Co., Hartford, Conn.  
Lewthwaite Mch. Co., T. H., 811 E. 47th., N. Y.

**Presses, Sheet Metal**  
Federal Press Co., Elkhart, Indiana

**Presses, Steel**  
Allsteel Press Co., 12015 S. Peoria St., Chicago

**Pullers, Gear and Wheel**  
Armstrong-Bray & Co., 315 N. Sheldon St., Chicago, Ill.

**Pulleys, Die Cast**  
Chicago Die Casting Mfg. Co., 2502 W. Monroe St., Chicago.

**Pulleys, Steel and Wood**  
Deits Mfg. Co., Milwaukee, Wis.

**Pulleys, Vacuum Cup**  
Vacuum Cup Metal Pulley Co., Detroit

**Pumps**  
Brown & Sharpe Mfg. Co., Providence, R.I.  
Fulton Specialties Co., Blanchester, Ohio  
Galland-Henning Mfg. Co., Milwaukee, Wis.

**Pumps, Lubricant**  
Ruthman Machinery Co., Cincinnati, Ohio

**Punch, Shear and Bender, Hand**  
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago  
Buffalo Forge Co., Buffalo, N. Y.

**Punches and Dies**  
Whitney Mfg. Co., W. A., Rockford, Ill.

**Punches, Hand**  
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago  
Buffalo Forge Company, Buffalo, N. Y.  
Lewthwaite Mch. Co., T. H., 811 E. 47th., New York  
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Pyrometer Instrument Co., 102-105 Lafayette St., New York City

## Pyrometers, Portable & Stationary

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## Pyrometers, Surface

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Pyrometer Instrument Co., 102-105 Lafayette St., New York City

## Racks, Cut

Massachusetts Gear & Tool Co., Woburn, Mass.

## Reamer Holders

W. H. Nicholson & Co., Wilkes-Barre, Pa.

## Regrinding, Tool

Renu Tool Co., Detroit, Mich.

## Riveters, Multiple Spindle

Grant Mfg. & Mch. Co., Bridgeport, Conn.

## Riveters, Pneumatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

## Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.  
Linley Bros. Co., Bridgeport, Conn.

## Rod Cutters

Armstrong-Bum Mfg. Co., 341 N. Francisco Ave., Chicago  
Lewthwaite Mch. Co., T. H., 311 E. 47th St., New York  
Tucker, W. W. & C. F., Hartford, Conn.

## Router Bits

Putnam Tool Co., Detroit, Mich.  
Weidon Tool Co., Cleveland, Ohio

## Salvage

Vinco Tool Co., Detroit, Mich.

## Sanders

Rotor Air Tool Co., Cleveland, Ohio

## Saws, Electric Hand

Delta Mfg. Co., Milwaukee, Wis.  
Porter-Cable Machine Co., Syracuse, N. Y.  
Syntren Co., Pittsburgh, Pa.

## Saw Sharpening Machines

Wardwell Manufacturing Co., Cleveland, O.

## Sawing Machines

Continental Mch. Specialties, Minneapolis

## Scraping Mchs., Hand & Pneumatic

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Haskins Co., E. G., 4654 W. Fulton, Chgo.

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## Screw Machines, Automatic

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## Screws, Transfer

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## Set Screws

Triplex Screw Co., Cleveland, Ohio

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Pratt & Whitney Co., Hartford, Conn.  
Strand Co., N. A., 5001 N. Lincoln St., Chgo.  
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

## Shafts, Hangers & Boxes

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## Shafts, Steel

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## Shaping Machines

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Western Mch. Tool Wks., Holland, Mich.

## Shears

Waltney Mfg. Co., W. A., Rockford, Ill.

## Shears, Hand

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Beverly Throatless Shear Co., 3007 W. 110th Place, Chicago, Ill.  
Lewthwaite Machine Co., T. H., 311 E. 47th St., New York  
The National Machine Tool Co., Racine, Wis.  
Whitney Metal Tool Co., Rockford, Ill.

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American Tool Works, Inc., Hartford, Conn.  
Taglin, Joseph J., 215 N. Desplaines St., Chicago, Ill.

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Armigro Co., Milwaukee, Wis.  
Chicago Gear Wks., 769 W. Jackson, Chgo.  
Cushman Wheel Co., 1359 Altgeld St., Chgo.  
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Sutton Tool Co., Detroit, Mich.

**Spot Welding Machines, Speed.**  
Armco Co., Milwaukee, Wis.  
Euler Engineering Co., Inc., Newark, N. J.  
Pier Equip't. Mfg. Co., Benton Harbor, Mich.

**Sprockets**  
Cullman Wheel Co., 1359 Altgeld St., Chgo.  
Massachusetts Gear & Tool Co., Woburn, Mass.

**Stampings**  
Gerding Brothers, Cincinnati, Ohio  
Hamilton Tool Co., Hamilton, Ohio

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Narragansett Mche. Co., Pawtucket, R. I.

**Steel Shelving**  
Narragansett Mche. Co., Pawtucket R. I.

**Straightening Machines**  
Whitney Metal Tool Co., Rockford, Ill.

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Midwest Tool & Engineering Co., Dayton, O.

**Tap Extractors**  
Walton Co., Hartford, Conn.

**Tap Holders**  
Procunier Safety Chuck Co., 14 S. Clinton St., Chicago

**Taper Gages**  
Precision Gage & Tool Co., Dayton, Ohio

**Tapping Machines**  
Etico Tool Co., Brooklyn, N. Y.  
Rickert-Shafer Co., Erie, Pa.  
Sloan & Chase Co., Kearny, N. J.  
Western Mche. Tool Wks., Holland, Mich.

**Tapping Attachments**  
Errington Mech. Lab., Staten Island, N. Y.  
Etico Tool Co., Brooklyn, N. Y.  
Procunier Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.  
Western Mche. Tool Wks., Holland, Mich.

**Tapping Jigs, Universal**  
Heuser Mfg. Co., 1638 No. Paulina St., Chicago, Ill.

**Tapping Machines and Attachments**  
Burke Machine Tool Co., Conneaut, Ohio  
Ciserman Mche. Tool Co., Green Bay, Wis.  
Etico Tool Co., 594 Johnson Av., Brooklyn, N. Y.  
Haskins Inc., R. G., 4854 W. Fulton St., Chicago, Ill.  
Procunier Safety Chuck Co., 14 So. Clinton St., Chicago, Ill.  
Whitney Metal Tool Co., Rockford, Ill.

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Rickert-Shafer Co., Erie, Pa.

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Ridge Tool Co., Elmhurst, Ohio.  
Hivett Laths & Grinder Inc., Brighton, Boston

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Rigid Toolholder Co., Detroit, Mich.  
Western Tool & Mfg. Co., Springfield, O.

**Tools**  
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**Tools, Abrasive**  
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

**Tools, Boring**  
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago  
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**Tool Grinding**  
Rena Tool Co., Detroit, Mich.

**Tool Salvage**  
Rena Tool Co., Detroit, Mich.

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Brown & Sharpe Mfg. Co., Providence, R.I.

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**Transfer Screws**  
Helmann Mfg. Co., Urbana, Ohio

**Tube Flanging Machines**  
Grant Mfg. & Mche. Co., Bridgeport, Conn.

**Tungsten Carbide**  
Metal Carbides Corp., Youngstown, Ohio

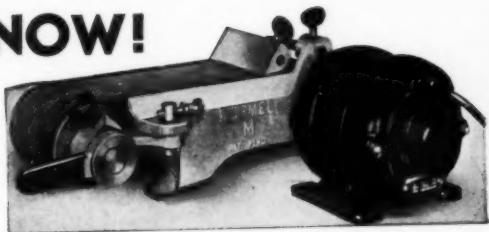
**Turning Tools**  
R & L Tools, Nicetown, Phila., Pa.

**Universal Drill Jigs**  
Heuser Mfg. Co., 1638 No. Paulina St., Chicago, Ill.

**Universal Joints**  
American Tool Works, Inc., Hartford, Conn.  
Chicago Gear Works, 760 W. Jackson Blvd., Chicago

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Adams Mch. Co., 134 S. Clinton St., Chgo.  
Alamo Engine Co., Hillsdale, Mich.  
Heatty Machine Mfg. Co., Hammond, Ind.  
Belyea Co., Inc., 150 W. 18th St., New York, N. Y.  
Bennet-Raffin Corp., 30 Church St., N. Y. N. Y.  
Bernstein & Co., Geo. M., 128 Clinton St., Chgo.  
Blower Mfg. & Mch. Co., Springfield Ill.  
Bradley Machinery Co., Detroit, Mich.  
Brown Machinery Co., St. Louis, Mo.  
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**Essley Machinery Co., E. I.,** 825 Ross St., Chicago, Ill.  
**Ford City Machinery Sales Co.,** Ford City, Pa.  
**General Blower Co.,** 301 N. Peoria St., Chicago, Ill.  
**Goldman, Harvey H.,** Detroit, Mich.  
**Goldsher Machinery Co.,** 817 W. Lake St., Chicago, Ill.  
**Haskell Machinery Co.,** 3400 Connor Ave., Detroit, Mich.  
**Hill, Clarke & Co.,** 645 W. Washington Blvd., Chicago, Ill.  
**Howarth Mch. Co., Inc.,** C. C., Detroit, Mich.  
**Hyman & Sons, Joseph,** Philadelphia, Pa.  
**Indianapolis Machinery & Supply Company,** Indianapolis, Ind.  
**International Machinery Co.,** Detroit, Mich.  
**Interstate Mch. Co.,** 139 S. Clinton, Chicago, Ill.  
**Iroquois Machinery Co.,** Buffalo, N. Y.  
**Johnson & Sons Machinery Co.,** Wm. C., St. Louis, Mo.  
**Jones Machine Tool Co.,** Cincinnati, Ohio  
**Kinney Co., E. A.,** Cincinnati, Ohio  
**Kleuber Mch. Co.,** St. Louis, Mo.  
**Lang Machinery Co.,** Pittsburgh, Pa.  
**Lease, J. L.,** Bridgeport, Conn.  
**McDonald Machinery Co.,** St. Louis, Mo.  
**Machinery Dealers, Inc.,** New Haven, Conn.  
**Marr-Galbreath Mch. Co.,** Pittsburgh, Pa.  
**Midwest Equipment Co.,** 628 W. Lake St., Chicago, Ill.  
**Miss Machinery Co.,** Saginaw, W. S., Mich.  
**Monitor Machinery Co.,** Charles L., 120 S. Clinton St., Chicago, Ill.  
**Moore & Co.,** 45 Mill St., Astoria, Long Island, N. Y.  
**Norton-Broadway Machinery Co.,** Cincinnati, Ohio  
**O'Brien Machinery Co.,** Philadelphia, Pa.  
**Oil Mch. & Supply Co.,** Cincinnati, Ohio  
**Ott Machinery Sales Co.,** Detroit, Mich.  
**Osborne & Sexton Mch. Co.,** Columbus, O.  
**Reliance Machinery Sales Co.,** Pittsburgh, Pa.  
**Riverside Machinery Depot,** Detroit, Mich.  
**Rosenkrantz & Weisbecker,** 2309 A Singer Bldg., New York City  
**Scott-Bansbach Mch. Co.,** 4907 W. 20th St., Chicago, Ill.  
**Segal Machinery Co.,** 117 S. Clinton St., Chicago, Ill.  
**Simmons Machine Tool Corp.,** Albany, N. Y.  
**Standard Mch. Co.,** Grand Rapids, Mich.  
**Stratford Machinery Co.,** 138 Liberty St., New York, N. Y.  
**Strong, Carlisle & Hammond Co.,** Cleveland, Ohio  
**Sun Machinery Co.,** 28 Van Buren Street, Newark, N. J.  
**Surplus Stock & Mch. Co., Inc.,** 1133 W. Lake St., Chicago, Ill.  
**Toledo Mch. Exchange Co.,** Toledo, Ohio  
**Travers Tool Co.,** 5 Ct. Square, Long Island City, N. Y.  
**United Mch. & Supply Co.,** St. Louis, Mo.  
**Victor Machinery Co.,** 128 S. Clinton Street, Chicago, Ill.  
**Victor Machinery Exchange** 251 Centre St., New York, N. Y.  
**Vine, R. A.,** Detroit, Mich.  
**Wain Mch. Sales, Chas. E.,** Detroit, Mich.  
**Wertman Machinery Co.,** Cleveland, Ohio  
**West Penn Machinery Co.,** Pittsburgh, Pa.  
**White Mch. Co., A. D.,** 168 N. Jefferson St., Chicago, Ill.  
**Wigglesworth Mch. Co.,** Cambridge, Mass.  
**Wolnick Machinery Sales,** 9 S. Clinton St., Chicago, Ill.

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### Vacuum Cleaners, Industrial

**Brewer Elect. Co.,** 846 Blackhawk St., Chgo.

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### Valves

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**Ross Operating Valve Co.,** Detroit, Mich.

### Valves, Foot, Lever & Solenoid

**Nicholson & Co., W. H.,** Wilkes-Barre, Pa.  
**Ross Operating Valve Co.,** Detroit, Mich.

### Valves, Operating

**Ross Operating Valve Co.,** Detroit, Mich.

### Vises, Drilling Machine

**Armstrong-Bum Mfg. Co.,** 841 N. Francisco Ave., Chicago, Ill.  
**Armstrong Bros. Tool Co.,** 808 N. Francisco Ave., Chicago, Ill.  
**Graham Manufacturing Co.,** Providence, R. I.  
**Heuser Mfg. Co.,** 1638 No. Paulina St., Chicago, Ill.  
**L. W. Chuck Co.,** Toledo, Ohio  
**Martin Tool & Die Works, J. E.,** Springfield, O.  
**National Machine Tool Co.,** Racine, Wis.  
**Odin Universal Corp.,** 110 S. Dearborn, Chgo.  
**Sheldon Machine Co.,** 3255 Cottage Grove Ave., Chicago, Ill.  
**Walker-Turner Co., Inc.,** Plainfield, N. J.

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**L. W. Chuck Co.,** Toledo, Ohio  
**Odin Universal Corp.,** 110 S. Dearborn, Chgo.  
**Sheldon Machine Co.,** 3255 Cottage Grove Ave., Chicago, Ill.  
**Western Tool & Mfg. Co.,** Springfield, O.

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### Vises, Shaper

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**Modern Machine Tool Co.,** Jackson, Mich.

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**Armco Co.,** Milwaukee, Wis.  
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**Pier Equipment Co.,** Benton Harbor, Mich.

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**Esler Engineering Co., Inc.,** Newark, N. J.  
**Pier Equip. Mfg. Co.,** Benton Harbor, Mich.

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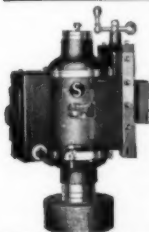


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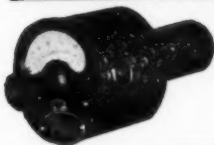
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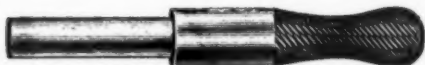
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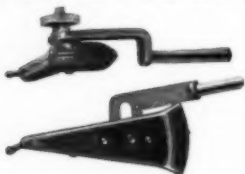


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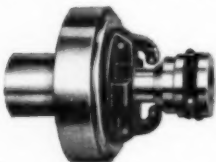
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Welder, No. 259A12 T. Gibb 60-440 v.

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**Ohio Machinery & Supply Co., 433-35 E. Pearl St., Cincinnati, O.**

Boring mill, Rudolph & Krummel horizontal 2½" bar complete.

Drill press, Kern ball bearing high speed single spindle.

Drill press, 2½" Superior upright drill b. g. tapping attachment.

Drill press, 20" Superior upright drill, 20" Silver upright.

Grinder, Cincinnati No. 1½ tool and cutter grinder, complete.

Keyseater, Baker No. 1.

Lathe, 16"x8" Van Wyck, h. s. c. r., d. b. g., with chuck.

Miller, Fox hand miller.

Riveter, Grant spinner.

Shear, Pettingell rotary 31" throat.

# USED AND REBUILT MACHINERY

## FOR SALE BY

### McDonald Machinery Co.,

Air comp., Ingersoll-Rand 7x6.  
Boring mill, Lucas No. 21 horizontal.  
Boring mills, Barrett 5" bar horiz.  
Boring mill, Niles 36" vert., 2 hds.  
Boring mills, Baush 44" vert., m. d.  
Brake, Ohi 10" No. 10 ga. m. d. press.  
Drills, Barnes 20" & 24" Camel back.  
Drills, radial, Foadick 3", Prentice 3"; Mueller 24" all s. p. d.  
Gear cutter, G. & E. 36" s. p. d.  
Gear cutter, G. & E. 60" m. d.  
Gear hobber, G. & E. 24" & 48".  
Grinder, B. & S. Nos. 10 & 16 plain.  
Grinder, P. & W. 12" vertical surf.  
Lathes, Reed-Prentice 16"x8", q. c. g.,  
grd. hd.; Hendey 18"x8", q. c. g.;  
50 others in stock.  
Milling machines, B. & S. No. 3 univ.  
Milling mchs., Rock, No. 2-B s. p. d.

### 1535 N. Broadway, St. Louis, Mo.

Hendey No. 1-B, Kemp. No. 3;  
Ohio No. 29; vertical slott, attach.,  
all universal; Cincinnati No. 3 pl.  
LeBlond No. 3-H; Brown & S.  
No. 3-B, s. p. d., Brown & Sharpe  
No. 3, all plain, Cincinnati 12"  
Mfg.; Kempsmith, No. 33 Prod.  
Planer, 60"x48"x10' Gray 2 heads,  
Punch press, Fer. No. S9-52 d. c.  
Cons. Nos. 1 & 2 o. b. i. Niagara  
No. 66 D d. c. Ohl d. c. grd.  
No. 50 O. B. I. geared.  
Shapers, G. & E. S. & M., Cin., Ohio  
American, Steptoe, Queen City,  
12", 16", 18", 20", 24" and 26";  
Cinti. 24" m. d. g. b. Rhodes vert.  
Screw machine, Brown & Sharpe.  
No. 2 auto.; B. & S. No. 00 Auto.  
Turret lathes, W. & S. No. 2 A univ.

## FOR SALE BY

### Belyea Company, Inc.,

#### D. C. MOTORS

Adj. Speed—230 Volt

H. P.	TYPE	SPEED
1-1500	West.	470/600
1-250/410	Cr. Wh.	1000/1200
2-150	G. E.	1000/1200
2-125	West.	240/600
2-120	G. E.	300/750
3-80	Diehl	500/1100
1-75	G. E.	300/900
2-60	El. Dy.	450/1200
5-60	El. Dy.	525/1050
2-50	West.	225/600
1-40/50	Cr. Wh.	175/700
1-40	West.	300/900
1-40	West.	600/1200
1-35	Cr. Wh.	800/1600
12-25	West.	650/2200
2-20	West.	375/1500
1-20	West.	550/1100
2-20	G. E.	500/1500
20-10	West.	500/1500
25-7 1/2	West.	400/1600
26-5	West.	400/1600
1-5 1/2	West.	600/1800
10-3 1/2	West.	450/1800
15-2 1/2	West.	450/1800

#### MOTOR GEN. SETS.

1-1500 k. w., G. E., type-M. P. C.,  
D. C. Gen. 250 v., com'd. inter  
pole, conn. to 2150 h. p., 8 P. F.,  
type ATI, synch. motor, 11.431/  
6600 v., 360 r. p. m., 3 ph. 60 cy.  
1-1000 k. w., G. E. type-M. P. C.,  
D. C. Gen. 250 v., conn. to 1400  
h. p. type ATI, synch. motor,  
6600/2300 v., 514 r. p. m., 3 ph. 60  
cycle.

### 150 W. 18th St., New York, N. Y.

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v., conn. to 710 h. p., 8 P. F.  
synch. motor 4600/2300 v., 1200  
r. p. m., 3 phase, 60 cycle.  
1-200 k. w., Crocker Wheeler type  
149DA comp'd. inter pole, 230 v.,  
D. C., conn. to 30 h. p., Sq. Cage,  
A. C. motor, 2300/440 v., 720  
r. p. m., 3 ph., 60 cy.

#### A. C. MOTORS

Synch. Type

H. P.	TYPE	VOLTS	SPEED
1-2850	G. E.	2300/4150	450
1-675	Al. Ch.	2200/550	900
1-600	G. E.	2200/550	257
1-260	Al. Ch.	2200/440	720
1-125	West.	2300	900
1-50	G. E.	440/220	1200
1-35	G. E.	440/220	1200

#### SLIP RING

H. P.	TYPE	VOLTS	SPEED
1-1200	West.	2200	360
1-600	G. E.	2300/550	257
1-600	G. E.	2300/440	705
1-450/360	West.	2200	875/700
1-400	West.	2300	514
1-400	West.	550	505
1-300	G. E.	550	575
1-250	F. Morse	2200	1200
1-250	West.	2300/440	700
2-200	West.	220/440	900
1-200	G. E.	220/440	900
1-150	G. E.	440	1750

#### SQUIRREL CAGE TYPE

H. P.	TYPE	VOLTS	SPEED
1-300	Cr. Wh.	2300/220	580
1-250	West.	2300/440	580
1-150	G. E.	220/440	900
1-150	West.	220/440	720
1-150	West.	220/440	580

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Air compressor, Daco No. 605 P complete, motor and tank.....	\$ 85.
Air compressor, Curtis model A, 4 1/2 x 4 1/2, 8 to 16 cu. ft.,.....	50.
Automatic screw machines, B. & S., Nos. 00, 0, 2.....	\$350. to 800.
Automatic, cut-off B. & S. No. 00 high serial.....	400.
Automatic screw machine, B. & S. No. 19 high speed, cap. 3/4" x 1 1/2, m. d.....	500.
Automatic screw machine, Davenport, 3/4", 5 spindle, b. d.....	500.
Automatic screw machine, Gridley, 4 spindle model G, 9/16" cap.....	600.
Automatic screw machine, Gridley 4 spdl. Model F, 1/2" and 2 1/2.....	\$150 & 750.
Automatic screw machine, Gridley, 4 spdl., 1 1/2", Model G. and F.....	600.
Automatic screw machine, Cleveland Model "M", 4 spindle, 3/4", m. d.....	1000.
Automatic screw machine, Cleveland Model "B", 2" ca. belt drive..	300.
Drill, New Albany, h. s., motor drive, 110-60-1.....	100.
Drill, Leland Gifford, h. s., b. b. sensible, 3/4" capacity.....	75.
Drill, Demco h. s., b. b., 3/4" capacity.....	110.
Drill, Demco h. s., b. b., 3/4" capacity.....	135.
Drill, Leland Gifford, h. s., b. b., 1 1/2" swing, No. 2 M. T.....	150.
Drill, 2 spindle Leland-Gifford h. s., b. b., sensitive, 3/4" cap.....	150.
Drill, 2 spindle Leland-Gifford h. s., b. b., 1 1/2", No. 2 M. T.....	250.
Drill, 2 spindle H. & W. h. s., b. b., 16" swing, heavy duty, class B....	175.
Drill, 3 spindle Avey, h. s., b. b. bench type on pedestal, 3/4" cap.....	200.
Drill, 3 spindle Leland-Gifford h. s., b. b., 1 1/2", No. 2 M. T.....	350.
Drill, 3 spdl., Leland-G., 24" swing, h. s., b. b., 12" travel, 26"x54" tbl.	500.
Drill, 4-spindle, Sigourney, plain brg., 14" swing, No. 1, m. t.....	125.
Drill, 4 spindle No. 2 Avey, h. s., b. b., 15", 3/4" capacity.....	500.
Drill, 4 spindle Demco, h. s., b. b., 16" swing, 3/4" capacity.....	400.
Drill, 6 spindle, h. s., b. b., Leland Gifford, 14" swing, No. 2, m. t....	750.
Drill, 20" Canedy-Otto, back geared, power feed.....	100.
Drill, 25" Barnes, stationary head, back geared, power feed.....	135.
Drill, No. 24, 24" Foot-Burt, heavy duty with tapping attachment....	500.
Drill, gang, 3 spindle Barnes, 22 1/2" swing b. g., p. f., No. 4, m. t.....	275.
Drill, radial, C. O., No. 50, wall post type, 2 1/2 foot arm, hand feed....	125.
Filing machine, No. 3 Bary, floor type, belt drive.....	100.
Gasoline engine, 10 h. p. Gray, automatic start.....	125.
Grinder, gear cutter, No. 23 Brown & Sharpe, 8" capacity.....	300.
Gear cutter, B. & S. No. 3, 26" for spur gears.....	200.
Gear hobber, No. 00 Pfauter, cap. 8" x 6" x 10 DP.....	100.
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Grinder, surface, Kinney & Martin, hand type, belt drive.....	100.
Grinder, surface, W. & M., cap., 8" x 24" with magnetic chuck No. 3....	475.
Grinder, Safety, surface, capacity 16" wide, 50" long, 12" high, belt dr.	500.
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Grinder, Heald, No. 63, cylinder, 16" spindle and fixture.....	350.
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Hammer, No. 4 A, High Speed belt drive, 1/2" cap.....	200.
Hammer, No. 5 A High Speed, motor shelf, 3/4" capacity.....	275.
Hammer, Bradley, 30 lb. compact belt drive.....	200.
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12"x42" and 10"x30" Landis.  
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Hammers vert. 40 & 80 lb. Perfect.  
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26" thr. 4 in 4"; Rock River Style  
L rapid action, 24" thr. 4 in 4";  
No. 6 L. & A. 24" thr. 4 in 4";  
No. 7 L. & A. 10" thr. 4 in 4".  
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Badger 10" thr. 4 in 4".  
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1x15" P. & W.  
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Shear, rotary bevel, 4" Lennox.  
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C13H Natco multiple hydraulic.  
1 and 2-spindle, Leland & Gifford.  
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21" and 24" Cincinnati sliding head.  
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Air compressors, 30 to 2500 cu. ft.  
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Draw bench 20000 lb. W-F.  
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Drills, upright 10" to 36".  
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Lathe, 24"x16" Bridgeford, g. hd. m. d.  
Lathe, 26"x18" Wickes g. h. q. c. g.  
Lathe, 28"x15" American, grd. hd.  
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Lathe, 48"x30" Pitts' h. p. c. g., b. d.  
Lathe, 60"x16" Putnam, b. d.  
Lathe, spinning 32" b. d.  
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Shear, bar 1 1/2", New Doty.  
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Shear, bevel, Lennox 1 1/2", b. d.  
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Upsetters, 1" to 6".  
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**Reliance Machinery Sales Company**

**1405 Brighton Place, N. S. . . . . Pittsburgh, Pa.**

Air compressor, 8"x8" Bury, 129'. Angle rolls, 4"x4"x3/8" cap. Brake and folder, 72" Niagara, pwr., 22 gauge, motor 3-60-220. Bulldozer, No. 9 W.-W., 70,000 lbs. Car wheel borer, 48" Niles. Corrugating rolls, 60", belted. Drill, 4 spindle Colburn, No. 4 Mfg. type. Drill, 20" 4 spdl. Barnes, all geared. Drill, 6 spdl. Prentiss, ball bearing sensitive, power feed, No. 2 taper. Drill and tap, Baker, 3" cap. Grinder, 14" P. & W. vert. surface. Lathe, 30"x18" Putnam, cone, cheap. Lathe, 18"x12" L. & S., q.c.g., cone.	Lathes, spinning, 30" Bliss & Tol., roller bearing spindles. Miller, No. 2 Cincinnati universal. Miller, No. 5C Becker vertical. Press, No. 92-C Toledo, dbl. crank, 42" bet. hsgs., geared, 3" str. Press, dbl. crank, 10" wide, 7" shaft, 6" stroke. Press, No. 2-W Bliss wiring type. Press, No. 34C Bliss toggle. Planer, 36"x36"x12" Cinti., 2 hds. Punch & shear, No. 2 L. & A., 1" thru 1" arch. jaw, angle blades, etc. Shaper, 34" G. & E. crk. cone drive. Welders, 300 and 400 amp. Lincoln, motor end 3-60-220-v.
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## FOR SALE BY

**Chas. Molitor Machinery Co., 120-124 S. Clinton St., Chicago, Ill**

Drill, Barnes, 3 sp. camel back. Drill, 24" Barnes 3 spindle. Drill, No. 2 Leland-Gifford. Drill, radial, 48" American. Drill, radial, 30" Fosdick, m. d. Drills, 1-sp. Avey, 1-sp. Allen. Lathe, L-G 16"x8" q. c. g. taper att., without stoppers. Lathe, 20"x11" Cisco, q. c. g. Lathe, 20"x8" American q. c. g. Lathe, 16"x8" Cincinnati, q. c. g. Lathe, 18"x8" L. & S. q. c. g. taper. Miller, No. 3 Kempsmith univ. Miller, No. 2 1/2 Le Blond univ. Miller, No. 3 B. & S. plain. Miller, No. 1-Y B. & S. plain. Miller, vertical No. 3 Bristol.	Miller, 8" Pratt & Whitney. Miller, twin spline P. & W. Miller, No. 12 Brown & Sharpe. Millers, smaller sizes (6). Miller, Knight vert. Nos. 1 1/2 and 2. Screw machines W. & S. No. 6, power cross feed; No. 4 W. & S. univ.; No. 1, 2, 3, 4, W. & S. Foster and Acme, No. 1 B. & S. No. 7 Foster, power c. feed, No. 4 & No. 6 B. & S.; Acme Fox tur. Shapers, 16" Ohio m. d. high speed. Shapers, 26" Niles-Bement. Shaper, 16" Steptoe. Tappers, Nos. 1 and 2 Garvin. Tappers, 1" Rickert-Shafer, horiz. Tappers, 1" Rickert-Shafer, vertical.
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Miscellaneous: arbor press, No. 4 Atlas, m. d.; Reed-Prentice prod. lathe, new; 18" form grinder; Napier metal band saw: 4", 1", 1 1/2" single and 3-sp. bolt cutters; miller, 24x14" Ingersoll; 27x7" Diamond heavy face grinder, 30" wheels; No. 0 Baker keyseater; balancing ways, 6" Rockford; cock grinder, single spindle W. & S.; grinder, disc, Diamond 24" d. c. motor dr.; nut tappers, Acme and P. & W. 4 spindle; lathes, W. & S. 12" double key.



# USED AND REBUILT MACHINERY

## FOR SALE BY

### Marr-Galbreath Machinery Co.,

Air comp., 9"x8" Ing-R., type ER-1.  
Air compressor outfits for garages,  
4, 1 & 1 1/2 h. p. 1/60/110-220.  
Air compr., 4"x4" Union air cooled.  
Bolt threader, 2 1/2" Landis dbl., m. d.  
Boring mill, 30" Colburn, turret hd.  
Boring mill, 30" Bullard VT L,  
threading attachment.  
Bor. mill, D. & H. bor. fl. 4" bar, m. d.  
Boring mill, floor, 6" bar N. B. P.,  
230 v. d. c., 2 column.  
Brakes, hand, 4"x14 ga. Robinson  
Brake lining, punch and riveting  
machine, m. d.  
Bulldozer, No. 6 W-W., clutch, b. d.  
Chain hoists, 1 1/2, 2, 3 and 4-ton.  
Crusher, Allis-Chalmers, 9x9", 2-roll,  
belt drive.  
Crusher, No. 1 Williams Little G., b. d.  
Die sinker, No. 3 P. & W., r. t.  
Drill, radial, 3" Dreeses, tapping att.  
Drill, 28" Superior, b. g., power fd.  
Drill, No. 11-B, Natco, 16-sp., m. d.  
Drill, rad., 2 1/2" Foadick & Holloway.  
Drill, radial, 3 1/2" Canedy-Otto.  
Grinder, Nos. 1, 1 1/2 & 2, tool & cut.  
Grinder, 7 1/2 h. p., U.S. dbl. end, 3/60.  
Grinder, pl. 11 B. & S. 4x30" (cheap).  
Grinder, sur., No. 14 P. & W. mag. chk.  
Hammer, 40 lb. Bradley horiz.  
helve, m. d.  
Hammer, power, 50 lb. Boss, b. d.  
Hammer, 1000 lb. Chamber's g. st. drop.  
Hammer, power, 50 lb. Little Giant,  
belt drive.  
Hammer, 200 lb. Beaudry, power.  
Hammer, 800 lb. Eric SF steam or air.  
Hammer, Syntron Elec., 1/60/110/.  
Hammer, 400 lb. Bliss board drop, b. d.  
Hammer, stm. drop, 1500 lb. (nr. new).  
Header, cold, 3" W.-F. D. S.-OD.  
Hoist, chain, 4-ton triplex, Y. & T.  
Jointer, bench, 4" Wallace.  
Keyseater, No. 2 Catlin, cap. 2"x15".  
Keyseater, No. 3 Mitts & M., belt.  
Lathe, 14"x6" Rockford, q. c. g.  
Lathe, 15"x6" Sidney, q. c. g.  
Lathes, 16"x7" National, q. c. g., (3).  
Lathe, Fox Monitor, 18"x6" Springh.  
Lathe, 20"x8" Hendey q. c. g., tie-bar hd.  
Lathe, 22"x12" Rahn-Larmon, q. c. g.  
Lathe, turret, No. 4 W. & S., bar  
feed, m. d. (2).  
Lathe, 11" Sundstrand, g. h., s. p. d.  
Lathe, 14"x19" Fay automatic.  
Miller, No. 4 Ohio, table 101".  
Pipe machine, 12" Cox, b. d.  
Pipe machine, 4" B. & K., gear box,  
motor drive.  
Pipe machine, 12" E. C. & B., s. p. d.  
Pipe machine, 18" Wieland, m. d.  
Planer, Gray, 56x48x10", 4 heads.

### 55 Water St., Pittsburgh, Pa.

Planer, 30"x30"x8" Liberty, 2-h. m. d.  
Planer, 48"x48"x10" Gray, 3-hds., b. d.  
Planer, 72"x56"x20" Cin., 3-hds., m. d.  
Press, United, O. B. 1 1/2" stroke and  
2" stroke.  
Press, Arbor, No. 8 Greenerd, hand  
Press, horn., No. 2 Swaine, 2" str.  
Press, 30-ton Louie hydraulic.  
Press, trimming 58 1/2" Toledo d. b. g.,  
10" stroke, friction clutch, m. d.  
Press, hydraulic 200 ton oil gear pump  
m. d., rapid ac., 10" st., bed 24x16".  
Pump, tripl., 1 1/2"x4" Worthington, b. d.  
Punch & cop., No. 12 W-W, 200-t., m. d.  
Punch, d. e., 3"x3": 3"x3", m. d.  
Punch & s., s. e., 24" tht. Cleve. "C".  
Punch & shear, 25x24 U. Buffalo,  
universal, motor drive.  
Punch & s., d. e., 1 1/2"x1", 16" thts., m. d.  
Punch, s. e. rapid, No. 000 H. & J.,  
16" throat.  
Press, arch, No. 3-A, Standard plain.  
Riveter, No. 130 Grant, cap. 3", m. d.  
Riveter, Shuster 3", rotary elastic.  
Rolling mill, No. 5 Buffalo, rolls  
3" dia, x 5 1/2"  
Rolls, 7"x5/16" pyramid, d. e., belt.  
Rolls, No. 3 Oliver, hand or power.  
Rolls, 42"x3" Pexto, latch hsgs., hand.  
Sandblasts, Pangborn AU-3 & AA-1.  
Sandblast, Leiman, size A-1.  
Saw, cold, No. 7 Espen-L., 15" belt.  
Saw, cold, No. 1 Newton, 4 1/2" belt.  
Saw, No. 1 Marvel hack, 4"x4", b. d.  
Saw, 6"x6" Racine hack, gear box,  
belt drive.  
Saw, back, 9"x9" Peerless, m. d.  
Shaper, 15" Blount, friction type.  
Shaper, 20" G. & E. b. g., m. d.  
Shaper, 21" Smith & Mills.  
Shaper, 24" Barker b. g. V-ram, b. d.  
Shaper, 24" Gould & Eberhardt, b.  
g., high duty, b. d.  
Shaper, 28" Hendey friction vise.  
Shear, No. 16-A Niagara ring and  
circle, 14 ga.  
Shear, throatless 18-M Marshall-  
town, motor drive.  
Shear, bar 3" United, 24" blade, m. d.  
Shear, bar & splitting, cap. 1" plate.  
Shear, slit'g. Buffalo 24-S (Armor pl.)  
Shear, plate, 16"x1" L. & A. 20" gap.  
Shear, squar., pwr., 30"x18 ga., belt.  
Steam turbines, 100 h. p. 900 rev (2).  
Valve refacer, Kwik-Way, cabinet  
base, m. d.  
Welder, Arc 300 amp. 3/60/220.  
Welders, arc, 35 amp., transformer.  
Welding & cutting generator, Carbic  
Wire str. & C-O-4" x4" Shuster (2).  
Wheel press, 60 ton 34"x24", b. d.

Partial List. Get Our New Complete Stock List.

## USED AND REBUILT MACHINERY

### FOR SALE BY

**H. F. Wolnick Machinery Co.,** - 9 So. Clinton St., Chicago, Ill.  
Grinder, disc, 18" Diamond, pr. c/s.  
Hack saw, power, No. 5 Marvel.  
Lathes, 12" to 52" to 26' in length.  
Milling mche., Nos. 3 and 4 vertical.  
Milling mche., No. 3 Cinc., s. p. d.  
Presses, toggle, DD-201 Ferracute.  
Radial drills.  
Screw machines, Warner & Swasey.  
Shear, Ohl, 10', 10 ga.  
Welders, spot and arc.

### FOR SALE BY

**E. L. Klauber Machinery Co.,** 320-322 South Third St., St. Louis  
Drills, Hi-speed, 12" and 14".  
Drill, 6 spindle, 7" overhang.  
Furnace, cyanide, No. 200 Stewart.  
Lathe, 12"x5' Seneca Falls.  
Lathe, 15"x8' Sebastian 22" gap.  
Lathe, 19"x8' Draper, q. c. g.  
Radial, 1" electric drill on arm.  
Rolling machine, strip, Toledo.  
Turret lathe, No. 2 W. & S., long bed  
Welders, spot, 12 and 25 k. w.

### FOR SALE BY

**M. A. Wertman Machinery Co.,** 623 Penton Bldg., Cleveland, Ohio  
Automatic, 3" cone, m. d., rebuilt.  
Automatic, 3" model B Cleveland.  
Broach, No. 3 LaPointe, dbl., s. p. d.  
Cock grinder, Turner 1", 4-spindle.  
Drill, Natco No. 14 rect. hd. 22-spdl.  
Gear cutter, B. & S., No. 4, 36".  
Lathe, 14"x6' Monarch, q. c. g.  
Miller, No. 33 B. & S., automatic.  
Miller, No. 2 Cincinnati universal.  
Miller, No. 2 Rockford plain.  
Miller, thread, No. 3 Lees-Bradner.  
Nibbler, Campbell 24" throat, m. d.  
Planer, 24"x6' Gray, like new.  
Press, No. 24 V. & O., punch 90%.  
Turret lathe, 24" Gisholt, 6 1/2" hole.  
Turret lathe, 21" Gisholt, 3 1/2" hole.

### FOR SALE BY

**Goldsher Machinery Co.,** - 817 W. Lake St., Chicago, Ill.  
Blowers, Claridge up to 72".  
Brake, Dreis & Krump, 4' 16 ga.  
Grinder, No. 60 Heald.  
Grinder, internal Taylor & Fenn.  
Hoists, chain, 2, 3, 4 and 5 ton.  
Lathe, 12"x5' P. & W. taper att.,  
18 collets.  
Punch & shear, No. 52 Beloit, 3 h. p.  
Punch, No. 6 Niagara, b. g. mult.  
Shaper, 28" Gould & E. b. g., c. d.  
Shear, 6' power, Kutscheid.  
Shear, No. 1 Lennox rotary, 4" cap.  
Speed reducers, 2, 5, 10, 15 & 40 h. p.  
Toggle press, No. 162 Toledo.  
Large stock of machine tools. Send us your inquiries.

### FOR SALE BY

**The O'Brien Machinery Co.,** 113 N. Third St., Philadelphia, Pa.  
Band saw, 42" American, V belt, m. d.  
Boring mill, 24" Bullard, rap. prod.,  
threading attachment.  
Boring mill, 3 1/2" bar Gidding &  
Lewis horiz. table 23"x45".  
Crane, 36' Gantry, 20 ton, hand oper.  
Drill, 3' American radial, s. p. drive.  
Drill, 6' Mueller radial, mtr. dr.  
Drill, 32" Cin. Bick upright, s. p. drive.  
Grinder, No. 55 Heald.  
Hammer, 100 lb. Bradley, helve.  
Hammer, 800 lb. Erie, steam forging.  
Hammer, 1100 lb. NBP. steam forg.  
Hammer, 2000 lb. Chambersburg  
double frame steam.  
Lathe, 16"x9' Chard, cone drive.  
Lathe, 24"x8' American, q. c., belt.  
Miller, 2A B. & S. universal table  
42"x11", single pulley drive.  
Miller, No. 2 Cincinnati univ., table  
36"x10", cone drive.  
Miller, No. 4B Becker vertical,  
table 10"x26".  
Miller, No. 5 Cincinnati plain, table  
76"x18", s. p. drive.  
Pipe machines, 2, 4, 6, 8 and 12"  
belt and motor drive.  
Punch, No. 1 1/2 L. & A., 36" throat,  
triple punch, motor drive.  
Rolls, 44" Niles, belt drive.  
Shapers, 14, 16, 20 & 24" various makes  
Shear, 8' Niagara, 15" gap, 2-16" cap.

## USED AND REBUILT MACHINERY

### FOR SALE BY

**Ott Machinery Sales, Inc.,**

**548 Second Ave., Detroit, Mich.**

Automatics, B. & S. Nos. 00, 0, & 19; Cleveland Model A  $\frac{1}{2}$  1 $\frac{1}{2}$ , 2, 2 $\frac{1}{2}$ , 3 $\frac{1}{2}$ , 4 $\frac{1}{2}$  & 5 $\frac{1}{2}$ ; Fay 14"x19"; Acme Nos. 52, 53, 54 and 55; Gridley, 4 spdl.  $\frac{1}{2}$ ", 1 $\frac{1}{2}$ ", 1 $\frac{1}{2}$ " & 2 $\frac{1}{2}$ ". Drills, h. s., b. b. Henry & Wright No. 2, 2, 4 and 6 spindle. Drill, rad. Bickford 5'; Mueller 4'. Gear shapers, Fellows Nos. 6, 61, 7 and 22". Gear generators, Gleason 8" mfg. st. bevel; Gleason 15" spiral bevel, roughers and finishers; No. 5A Lees-Bradner, Barber-Colman No. 3 and 72. Grinders, Brown & S. No. 11, s. p. d. Brown & Sharpe No. 16 pl., m. d., No. 2 B. & S., surface; Cincinnati No. 3 Univ. 12x48". Heald No. 60, 65, 70, & 75. Lathes, Monarch 14"x6' qck. chg.;

Springfield 16"x6' relieving and taper attach.; Hendey, 16"x8'; Flather 16"x6'. Lathes, turret, J. & L. 2"x24" and 3"x36"; Warner & Swasey Nos. 2, 4 and 6, Nos. 1A, 2A and 3A. Milling mchs., B. & S. No. 1 $\frac{1}{2}$  univ. Cincinnati plain No. 2 high power; LeBlond No. 4 plain cone; Kemp-Smith Nos. 12 and 33 Mfg.; Model B Becker vertical. Planers, Cincinnati 60"x60" x20' 3-heads, m. d. Press Brake, 10' 10 ga. Ohl., m. d. Presses, Ferracute P2, 3 and 4, and D G 53; assorted o. b. i., s. s. single and double crank, also toggle Metalwood 30 ton hydraulic, Elmes hydraulic, 300 ton, 12" ram, 28" down stroke.

Many more good tools.: Your inquiries solicited.

### FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,**

**1211-1223 Hadley Street,**

**St. Louis, Mo.**

Air compressors, 30' to 2000'. Bolt threader, Nat. 2". Bolt threader, 2 heads, Nat. 1". Boring mill, 8'-8' Betts extension. Boring mill, 42" Colburn (2). Boring mill, No. 0 Barret. Boring mill, hor. 4 $\frac{1}{2}$  bar Betts knee type. Bulldozers, No. 3-4 and 8. Drill, radial 3' American. Drill, radial 3' Gang. Drills, radial, 4' arm, Dreses, b. d. Drills, Colburn D4. Drills, Baker 24". Furnaces, various sizes. Gear cutter, 60" G.E. spur. Grinder, No. 1 Wilmarth & M. univ. Grinder, 12"x72" Landis, m. d. Grinders, 10x36 Thompson uni. Grinders, 13x66 Landis universal. Grinders, 16x66 Landis cyl. plain. Grinders, surface Springfield 24x60". Hammers, 500 & 25 lb. Little Giant. Hammer, 200 lb. Bradley. Hammer, steam 4000 to 250 lb. Keyseater, No. 2 M&M. Lathes, 14"x6 American gear head. Lathes, 14"x6 Hendey. Lathe, 18"x8' geared head American. Lathe, 18"x8' L. & S. Lathes, 20"x8 Walcott, q. c. g. Lathes, 26"x12 Flather, q. c. g. Lathe, No. 3-A Warner & Swasey.

Lathe, turret No. 6 Woods, tilted. Lathes, turret, 24" Steinel. Lathes, 3 Gridley 2 $\frac{1}{2}$ " Model F., 4 sp. Miller, Pratt & Whitney spine. Miller, No. 4 Brown & S., plain. Miller, No. 3 Hendey, plain. Miller, No. 1 $\frac{1}{2}$  Rockford. Millers, No. 4 Cincinnati pl., c. d. Millers, No. 1 U. S. hand. Millers, Ingersoll, 27"x24"x10'. Planer, 36x30x8 Cleveland open side. Planers, 60"x48"x10' Gray, 2 heads. Planers, 24"x24"x6' Gray, 1 head. Planers, 30"x30"x8' Cincinnati, 2 hds. Planers, 36"x36"x10' Gray, h. d. 2hds. Planers, 36"x36"x10' Cincinnati. Press, 91C Toledo. Press, No. 2-3 & 4 Marshalltown, o. b. i., new. Press, arch, d. c., 28x54 bolster, No. 37 ex. Rolls, Niagara, 66" slip end, 5/16" cap. Saw, No. 14 Higley. Saw, No. 2 Marvel. Saws, 6x6 Robertson (2). Shaper, 16" Smith & Mills. Shear, 10' Niagara, 18 ga. Shear, 3' Niagara, 16 ga. Shears, 310 Niagara ring & circle 1/4" Shears, 44" Bertsch sq., 16 ga. Shears, No. 114 Lenox 1/4". 1000 other tools available.

## USED AND REBUILT MACHINERY

### FOR SALE BY

**Aaron Machinery Co., 176 Lafayette Street, New York, N. Y.**

Drill, radial, 2' Mueller.....\$275.	Pipe machine, Jarecki 2".....\$125.
Engraving mchs, Gorton, Deckel.	Press, No. 19 Bliss, o. b. i. .... 125.
Gear hobber, 24" Rhenania..... 475.	Press, Z & H dbl. action, 2,000 lb. 150.
Lathe, 18"x8" Walcott, q. c. g. .... 325.	Saw sharpener, No 11 Coch.-Bly 95.
Lathe, 24"x14" L & S, taper, q. c. g. 625.	Shaper, 20" Cincinnati, b. g. .... 295.

### FOR SALE BY

**General Blower Co., - - - 401 N. Peoria St., Chicago, Ill.**

#### BLOWERS—FANS—EXHAUSTERS.

For Dust Collecting—Ventilating.

Oil and gas burners, cupolas, furnaces, etc.

Roots—Connersville and centrifugal blowers.

What are your blower requirements?

### FOR SALE BY

**United Machinery & Supply Co., 1241 Walton Ave., St. Louis, Mo.**

Brake, 12'x8" cap., D. & K., m. d.	Press, ss 18" sq. bolster 8500 lb.
Brake, 8' Robinson 14 ga.	Press, No. 37 Excelsior, 54" wide.
Crane, gantry, 1 rail 25 h. p. a. c.	Rolls, 10'x8" cap. Pyramid, m. d.
Crane, 2 ton 40' 3 a. c. motors.	Saw, frict., Ryerson No. 3, 50", m. d.
Nibbler, No. 1A Campbell, m. d.	Shear, 4' Bertsch 18" gap, 16 ga.

### FOR SALE BY

**Cleveland Planer Co., 3148 Superior Ave., N. E., Cleveland, Ohio**

Grinder, disc, No. 10 Besly.	Planer, 48"x48"x20' Cleveland o. s.
Grinder, No. 2 1/2 Bath universal.	Punch press, No. 60 V. O. straight s.
Keyseater, No. 2 Davis.	Shaper, Smith & Mills 17"
Lathe, brake drum turning.	Slotter, 10" Niles-Bement-Pond.
Miller, Owen plain.	Slotter, 18" Betts.

### FOR SALE BY

**J. Bleser Mfg. & Machy. Co., 16th & Madison St., Springfield, Ill.**

Grinder, Landis Univ. No. 1 1/2.	Milling mach. No. 6 Transit.
Grinder, Besley disk, 19"	Radial drill, 7" Bement.
Knife grinder, 79" Hickok.	Shear, E-1 Badger, angle etc.
Lathe, 11x4 q. c., m. d. collets.	Trip hammers, 50-150 lb.
Lathe, 36"x18" L. & S. arr. m. d.	Valve refacer, B. & D., 1/2" univ.

## HOW

—can our advertisers know that your inquiry comes from Hitchcock's Machine Tool Blue Book unless you tell them? When writing them, won't you kindly say just where you saw their ad? Thank you!

## USED AND REBUILT MACHINERY

### FOR SALE BY

**Midwest Equipment Co., - - - 628-30 W. Lake St., Chicago, Ill.**

Air compressors, 6x6, 5x4.  
Grinders, Landis No. 2, universal.  
Grinders, Norton 10x50, cylindrical.  
Grinders, Norton Tool & Cutter.  
Lathes, 16x9 Rockford, taper attach.  
Lathes, Pratt & W., 4" capacity.

Lathe, 19x6 Sidney, quick ch. gear.  
Millers, No. 1 1/2 B. & S., pl.; No. 5  
B. & S. pl.; No. 3 Kemp., plain.  
Punch & shear, No. 52 Beloit comb.  
Screw machines, No. 2 B. & S. auto.

Planers, Lathes, Screw Machines, Air Compressors, Woodworking Machines.  
Complete stock of Punch Presses in all sizes. Send for list.

### FOR SALE BY

**Davis Machinery Co., St. Clair & Washington Sts., Toledo, Ohio**

Bolt cutter, 1" Landis dbl. hd. lead  
screws.  
Drill, No. 2 Colburn, mfg. type.  
Grinder, No. 3 Wilmarth & M. surf.  
Lathe, 3"x36" Jones & L. flat turret.  
Lathe, 28"x18" Pittsburgh, q. c. g.  
Lathe, 18"x8" Walcott, q. c. g.  
Mill, No. 2 Cleveland univ. compl.  
Mill, model C Becker vertical.  
Mill, 48" Cincinnati duplex, m. d.  
Mill, No. 3 Kempsmith, plain.  
Mill, No. 5B Brown & S. pl., s. p. d.

Mill, 24" Bullard vert. boring.  
Nibbler, 6" Campbell metal.  
Press, No. 53 Toledo, s. s.  
Radial drill, 3' Bickford, motor dr.  
Radial drill, 4' Hammond hinged arm  
Screw machine, 1 1/2" Cleve. model B aut.  
Screw machine, No. 3 Foster hand.  
Shaper, 15" Potter & J., crk.  
Shaper, 16" American crank, b. g.  
Shaper, 20"x24" Ohio crank, b. g.  
Threaders, 1/2" Geometric.  
Shear, 205 P.S. & W. circle & flanging.

### FOR SALE BY

**Lang Machinery Company, 28th St. & A. V. R. R. Pittsburgh, Pa.**

Air compr., 12"x10" Clgo. "nsb" b.d.  
Blower, No. 5 Sturtevant, 8 1/2" dis. b.d.  
Bor. mills, 42" Bullard, b. d., (3).  
Bor. mill, 54" Colburn, 2 hds. r. p. t.  
Bor. mill, 54" Bullard, 2 hds. r. p. t.  
Bor. mill, 72" Colburn, 2 hds. r. p. t.  
Bor. mill, 84" Sellers, 2 hds. b. d.  
Bor. mill, 10"-16" Betts, 2 hds. b. d.  
Bor. mill, 6" bar Barrett, m. d.  
Boring mill, fl. 4" bar Detrick & H.  
Bor. mill, fl. 6" bar N.-B.-P., m. d.  
Bolt cutter, 2" Acme, sgl. hd., b. d.  
Bolt cut., 2 1/2" Landis, dbl. hd., m. d.  
Drill, rad. 2" Fostick, t. a., b. d.  
Drill, rad. 3" Bickford, t. a., b. d.  
Drill, rad. 6" Bickford, box tbl. b. d.  
Drills, upright, 14" to 32".  
Gear cutter, 60" Eberhardt.  
Gear generator, 15" Gleason, s. p. d.  
Grinders, single and double end.  
Grinder, plain, cyl. 10"x50" Norton.  
Hammer, 100 lb. Bradley, cush. hel.  
Hammer, 5000 lb. Chamb., dbl. leg.  
Keyscater, No. 2 Davis, cap. 1/2" b.d.  
Lathe, 13"x6" South Bend, p. c. g., b. d.  
Lathe, 14"x6" Carroll, q. c. g., b. d.  
Lathe, 18"x8" Lodge & S. q. c. g., b. d.  
Lathe, 21"x10" LeBlond, g. h., m. d.  
Lathe, 24"x10" Bradford, p. c. g., b. d.  
Lathe, 24"x16" New Haven, p. c. g., b. d.  
Lathe, 26"x11" Wickes, s.-q. c. g., b. d.  
Lathe, 26"x16" American, q. c. g., m. d.

Lathe, 26"x12" Bridgeford, q. c. g., b. d.  
Lathe, 28"x10" Sch. & B., q. c. g., bd.  
Lathe, 30"x14" L. & S. q. c. g., m. d.  
Lathe, 30"x20" L. & S. q. c. g., m. d.  
Lathe, 36"x10" Wickes, s.-q. c. g., b. d.  
Lathe, 36"x12" Bridgeford, grd. hd.,  
q. c. g.  
Lathe, 38"x14" Boye & E. q. c. g., b. d.  
Lathe, 36"x16" Sch. & B. l. c. g., b. d.  
Lathe, 39"x26" New H., p. c. g., b. d.  
Miller, plain, No. 3 Brainerd, b. d.  
Miller, slab, 42"x28"x12" Inger, adj.  
Miller, univ. No. 1 1/2 B. & S., b. d.  
Miller, univ. No. 3 Becker dh., v. att.  
Miller, thread, 6"x48" Pratt & W.  
Miller, vert. No. 2-A Becker, m. d.  
Miller, vert. No. 4-B Becker, rot. tbl.  
Planer, 42"x56"x10" Cin., 4 hds., m. d.  
Planer, 60"x48"x14" N.-B.-P. 3hds. b. d.  
Press, o. b. i. No. 0 Thomas, str. 1 1/2".  
Press, No. 54 Toledo, s. s., str. 2".  
Punch, No. 5 H. & H. 62" th. 1 1/2"-1 1/2".  
Saw shaping, 6"x6" Peerless, B. m. d.  
Shaper, 20" American, b. g., b. d.  
Shaper, 24" Cincinnati, b. g., b. d.  
Shaper, 24" Cinc., b. g., m. d.  
Shaper, 38" Gould & Eberh., b. d.  
Shear, Alligator, Lewis, cap. 1 1/2".  
Straightener, wire, Shuster, 1/2"x6".  
Tumbling barrel, 24"x53", b. d.  
Welders, arc, 200-300-400 amp. Line.

# MODERN MA

## ENGINE LATHES

- 60"x48' Niles, two carriages.
- 36"x18' LeBlond Geared Head, m. d.
- 36"x18' American, cone, taper.
- 36"x11' American, cone.
- 30"x14' Lodge & Shipley, cone.
- 28"-57"x12' Putnam Gap, cone.
- 24"x12' Lodge & Shipley, cone, taper.
- 22"x8' Lodge & Shipley, cone.
- 21"x10' LeBlond Grd. Hd., m. d., taper.
- 20"x10' Hendey Grd. Hd., m. d., taper.
- 20"x10' Hendey Yoke Head, taper.
- 20"x6' Hendey Geared Head, m. d.
- 24"x12' LeBlond, cone.
- 18"x8' Greaves-Klusman, cone, taper.
- 18"x8' Boye & Emmes, cone.
- 24"x12' American Geared Head Super Productive, like new, motor drive.
- 18"x8' Lodge & S. Selective Hd., m. d.
- 16"x8' Lodge & S. Selective Hd., m. d.
- 16"x8' Greaves-Klusman, cone.
- 16"x6' Hendey Yoke Head, taper.
- 18"x8' Monarch, Geared Head.
- 18"x8' Hendey Yoke Head.
- 18"x8' Lodge & Shipley, cone head.
- 12"x6' Hendey Geared Head, taper.

## TURRET LATHES, MFG. LATHES

- No. 2A, 3A Warner & Swasey Universal, geared head, motor drive.
- No. 4 Warner & Swasey Univ., cone.
- No. 2, 4, 6, 8 W. & S. Turret, cone.
- No. 5A, 6A, 7A Potter & Johnston Automatics, motor drive.
- No. 6C Potter & Johnston Auto., m. d.
- No. 4, 7 Bardons & Oliver Turret
- 21"x10' LeBlond Mfg. Lathe, grd. hd.
- 21"x10' LeBlond Mfg. Lathe, cone hd.
- 22"x5' Monarch Geared Head Lathe, motor drive in base.

- 20"x8' American Turret Lathe, cone.
- No. 9, 12 LeBlond Multi-Cut, m. d.
- Gisholt Simplimatic, motor drive.

## MISCELLANEOUS

- 20' Bending Rolls, cap. 1" plate.
- No. 4120 Stoll Power Squaring Shear, motor drive, 3/16"x10' cap.
- 32" Cincinnati Shaper, gear box.
- 24" Cincinnati Shaper, cone.
- 28" Averbeck Shaper, s. p. d.
- 24" Gould & Eberhardt Shaper, cone.
- 2" 2-spindle Acme Bolt Cutter, cone.
- Southwark Metal Cutter, m. d.
- 6-spindle No. 1 Avey-Matic Drill, m. d.
- 5' Cincinnati Bickford Plain Radial Drill, s. p. d.

## GRINDERS

- No. 72A5 Heald Plain Internal, two motor drive, hydraulic, late type.
- No. 218 Bealy B. B. Dbl. Spld. Disc, m. d., latest.
- No. 4 Gardner b. b. Disc, bel.
- No. 120 Gardner Combination Disc, belt.
- No. 24-53" Gardner Horizontal Disc.
- No. 2 Diamond Auto. Surface, m. d.
- No. 2 Wilmarth & Morman Auto. Surf.
- No. 25 Heald Rotary Surface, m. d. 12" chuck.
- No. 78 Wilmarth & Morman Automatic Surface, motor drive.
- 18x48" Diamond Light Duty Face, m. d.
- Nos. 1 1/2, 4 Landis Universal, belt.
- 12x36" Cinc. Self-Cont. Univ. Cyl., 3 motor drive.
- No. 3 Brown & Sharpe Universal, bel.
- 6x18", 10x24", 10x30", 10x36", 10x52", 10x72", 12x36", 12x52", 12x72", 16x32", 16x52", 16x72", Landis Plain Self-Contained Cylindrical, m. d.

**EASTERN MACHINERY CO.,**

# MACHINE TOOLS

6x32", 10x36", 10x50", 10x72",  
12x72", 14x72" Norton Plain Cyl-  
indrical, belt and motor drive.

No. 1 LeBlond Universal Tool & Cutter.

No. 2 Oesterlein Univ. Tool & Cutter.

Nos. 21, 31, 41, Oliver Drill Grinders,  
m. d. in base.

## GEAR MACHINERY

10" Pratt & Whitney Hydraulic Gear  
Grinder, 3 motor drive, for spur and  
helical gears, latest type.

No. 18H Gould & Eberhardt Gear  
Hobber, s. p. d.

No. 12 Barber-Colman Gear Hobber,  
double overarm.

Nos. 3, 12 Barber-Colman Gr. Hobbers,  
single overarm.

Schuchardt & Schutte Gear Tooth  
Rounder, belt.

No. 5A Lees-Bradner Gear Generators,  
14" and 19" sizes.

6", 11", 18" Gleason Straight Tooth  
Bevel Gear Generators.

12" Ingle Gear Tooth Rounder.

Nos. 3, 4 Brown & S. Gear Cutters.

Hercules Gear Hobber, belt.

Nos. 6, 61, 612 Fellows Gear Shapers,  
belt.

No. 7 Fellows Gear Shaper, m. d.  
like new.

## BORING MILLS

24" Bullard New Era, m. d.

30" Gisholt Vertical, belt.

36" Bullard Vertical, cone.

36" Colburn Vertical, gear box.

37" Niles Vertical, 2 heads, gear box.

40" King Vertical, belt.

42" Bullard Rapid Production, belt.

54" Niles, motor drive, 2 heads.

## MILLING MACHINES

No. 2A Brown & Sharpe Universal,  
motor drive, taper spindle.

No. 3A Heavy Brown & Sharpe Uni-  
versal, motor drive.

No. 2 Brown & Sharpe Univ. cone.

No. 2 Milwaukee Universal, motor in  
base, Timken Bearings, National  
Standard Spdl., dial feed, very late.

No. 4A Heavy Brown & Sharpe Uni-  
versal, m. d.

No. 4 Cincinnati Universal, s. p. d.

No. 4B, 6 Becker Vertical, cone.

No. 1B, 3B Milwaukee Plain, motor  
drive, double overarm.

No. 4B Hvy., 5B Hvy., Brown & S.  
Plain, m. d., s. p. r. t.

No. 4 Cincinnati Plain, m. d.

Nos. 1, 1½, 2, 3, 4 Cinc. Plain, cone.

No. 1, 3 Kempamith Plain, cone.

48" Cincinnati Plain Automatic, worm  
drive, motor drive, late.

48" Cincinnati Plain Automatic, spur  
drive, s. p. d.

18", 24" Cincinnati Plain Auto., m. d.

24" Cincinnati Duplex, Auto. m. d., late.

24" Cincinnati Duplex, Auto., s. p. d.

No. 33 Kempamith Mfg. s. p. d.

48" Oesterlein Tilted Offset Milling Ma-  
chine, m. d., Timken Bearings, brand  
new, latest type.

*Write for our New Stock List No. 37.*

**65 Spring Grove Ave., CINCINNATI, O.**

# -BUY NOW-

## Automatics

No. 90 Brown & Sharpe.  
Nos. 2, 2G Brown & Sharpe.

## Boring Machines (Hor.)

5" bar Newton floor type.  
No. 6 DeHance, 4 1/2" bar.  
No. 2 Lambert, 4" bar.  
No. 2 Lucas, 3 1/2" bar.  
No. 3-A Universal, 3" bar.  
No. 1 Cleveland, 2 1/2" bar.

## Boring Mills (Vertical)

24", 36", 42" Bullard, "New Era".  
30", 42" and 52" King.  
42", 48" and 60" Colburn.

## Drills (Ball Bearing)

1, 2, 3, 4 Spindle L-G.  
1, 2, 3, 4, 6 Spl. Henry & Wright.  
2 and 4-spindle Avey.

## Drills (Mfg.)

No. 2 Colburn, 2 and 4-spindle.  
20" Barnes, all geared.  
No. D-7 Colburn, comp. table.  
No. 210 3-spl. Barnes, self-oil.  
No. 4 Hausch, mult.

## Drills (Radial)

3' and 3 1/2' Carlton.  
4' and 5' Fosdick.  
6' Western.  
6' American Triple purpose.

## Gear Cutters

Nos. 3 & 12 Harber-Colman.  
Nos. 9-H & 18-H G. & E. hob.  
No. 16HSB Gould & Eberhardt.  
Nos. 7, 6, 612, 65, 615 Fellows.  
6" & 18" Gleason bevel gear.  
37" Gleason bevel planer.

## Grinders (Plain)

Heim Centerless.  
Nos. 10, 11, 12 B. & S.  
6"x32" Norton.  
10"x18", 24", 36" Norton.  
10"x30", 72", 96" Norton.  
10"x36", 52" Landis.  
14"x36", 50", 72" Norton.  
18"x96" & 18"x120" Norton, m. d.  
20"x168" Landis, m. d.

## Grinders (Univ.)

No. 13 B. & S., cutter & tool.  
No. 2 & No. 2 1/2 Bath universal.  
No. 1 1/2-10"x30" Landis.  
No. 4-12"x66" Landis.

## Grinders (Misc.)

No. 1 1/2 Landis, Internal.  
No. 70 Heald, Internal.  
No. 10 & No. 16 Blanchard surface.  
No. 16 A Blanchard surface.  
14"x36" P. & W. vertical surface.  
15"x17"x72" Norton, o. s., surf.  
36"x84" Diamond, hyd. face.

## Lathes

No. 3 L. & S. Duomatic.  
No. 12 LeBlond Multi-Cut.  
14"x6" Lodge & Shipley.  
16"x8" and 16"x10" American t. a.  
18"-20 1/2"x8" L. & S. sel. g. h.  
20"-22 1/2"x8", 14" L. & S. sel. g. h.  
24"-27 1/2"x12", L. & S. sel. g. h.  
25"-27"x26" LeBlond.  
27"-30"x16" L. & S., sel. g. h.  
36"-40 1/2"x14" L. & S. sel. g. h.  
36"x30" Rahn-Larmon grd. hd.  
66"x21", 39" Putnam t.g., m. d.

## Millers (Plain and Universal)

Nos. 0, 2-B, 3-B, 4-B B. & S.  
Nos. 1-B and 2-B Milwaukee.  
Nos. 2 & 3 Cinn. h. p., s. p. d.  
No. 3-B Milwaukee, s. p. d.  
Nos. 4 & 5 Cinn. h. p., s. p. d.

## Millers (Mfg.)

No. 3 Sundstrand Rigidmill.  
No. 4-36 Cincinnati hydromatic.  
18" & 24" Cincinnati automatic.  
No. 33-60" Kempsmith.  
No. 4, No. 6 & No. 8 Lees-Brad.  
36"x36"x12" Newton Duplex.  
33"x44"x20" Ingersoll slab.

## Millers (Vert.)

No. 3-B Milwaukee.  
No. 3 Cincinnati h. p.  
No. 4 Cincinnati, h. p., s. p. d.  
No. 5 Brown & Sharpe.

## Planers

24"x24"x12" Gray.  
30"x30"x6", 18" Cincinnati.  
36"x36"x8", 18" Cincinnati.  
36"x36"x12" and 24" Gray.  
36"x36"x14" & 24" Cleveland o.s.  
42"x42"x30" N-B-P, Rev. m. d.  
48"x48"x10" Gray.  
48"x48"x12" Cleveland, openside.  
48"x48"x14" Liberty, openside.  
56"x56"x32" Cincinnati.  
60"x48"x16" Gray max. service.

## Presses

No. 106 Bliss Gap, dbl. crank.  
No. 173-A Consolidated.  
No. 96-F Toledo, double crank.

## Shapers

16" & 20" Gould & Eberhardt.  
20" American, s. p. d.  
24" Gould & Eberhardt.

## Turret Lathes

No. 4 W. & S.; Timken bearings.  
No. 1-A Warner & Swasey.  
No. 2-A Warner & Swasey.  
No. 3A Warner & Swasey.  
No. 2-B and No. 3-B Foster.  
No. 4-L Gisholt, 9 1/2 h. s.

# HILL-CLARKE MCHY. CO.

645 Washington Blvd.,

Chicago, Ill.



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# Offer Factory Reconditioned Tools

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## PUNCHES

No. 15 W. W.  $\frac{3}{8}$ " thru  $\frac{3}{4}$ " Single End, 24" Throat, Motor Drive.  
No. 14 W. W.  $1\frac{1}{4}$ " thru 1" Double End, 25" Throat, Motor Drive.  
Size A. L. & A. 2" thru  $1\frac{1}{2}$ " Single End, 36" Throat, Motor Drive.  
No. 000 H. & J.  $\frac{3}{8}$ " thru  $\frac{1}{2}$ " Single End, 18" Throat, Motor Drive.  
No. 2 H. & J. 1" thru 1" Single End, 15" Throat, Motor Drive.  
No. 3 H. & J.  $1\frac{1}{2}$ " thru 1" Single End, 30" Throat, Motor Drive.  
No. 10 Beatty Heavy Duty Beam, Ram 42"x34", with Spacing Table.  
No. 7 Beatty  $1\frac{1}{4}$ " thru 1" Single End, 42" Throat, Motor Drive.  
No. 5 Beatty  $\frac{3}{4}$ " thru  $\frac{1}{2}$ " Single End, 15" Throat, Flywheel Type.  
Rock River  $\frac{7}{8}$ " thru  $\frac{3}{4}$ " Single End 36" Throat, Motor Drive.  
Kling,  $2\frac{1}{4}$ " thru  $1\frac{1}{4}$ " Single End, 18" Throat, Motor Drive.

## SHEARS

Long-Allstatler  $\frac{3}{4}$ "x42", 8" Throat, Motor Drive.  
No. 6 Hilles & Jones  $\frac{7}{8}$ "x96", 36" Throat, Motor Drive.  
No. 6 $\frac{1}{2}$  Hilles & Jones 1"x96", 36" Throat, Motor Drive.  
No. 7 Hilles & Jones  $1\frac{1}{4}$ "x12', 36" Throat, Motor Drive.  
Loy-Nawrath,  $3/16$ "x10', Squaring Shear, Back Gauge, Motor Drive.

## DUPLICATORS

2 Sizes 8 Thomas Angle Punches with 50' Tables, Motor Drive.  
1 Size 8 Thomas Plate Punch 42" Throat, With Table, Motor Drive.  
1 Thomas Plate, With Kling 72" Throat Punch, Punch Plates up to 60"x120".

## PLATE TOOLS

No. 2 Hilles & Jones Straightening Roll,  $\frac{3}{4}$ " Plate, 50" wide, Motor Dr.  
No. 1 Hilles & Jones Bending Roll, 6' $\times\frac{3}{8}$ ", Drop End, Belt Drive.

## BENDERS AND BULLDOZERS

Williams White Beam Bender, 15" Beams, Motor Drive.  
No. 5 and No. 7 Williams White Bulldozers, Belt Drive.

## CRANES

2-Shaw Cranes and 1 Erie Crane:  $7\frac{1}{2}$  ton 57' Span, 230 D. C.

## MISCELLANEOUS

Air Riveters: Wide range of capacity, reach and gap.  
Hammers: Bradley: 75 lb. and 80 lb. Belt Drive.  
Lake Erie Stake Riveter: 50 ton, 18" Gap, 75" Reach.  
No. 5 Heavy Duty LeBlond Plain Mill, Single Pulley Drive.  
LeBlond Heavy Duty Lathe: 21"x8', Quick Change Gears, Belt Drive.  
Lewis Foundry Rail Breaker. Cap. 120 lb. Rails, Motor Drive.  
National  $\frac{3}{4}$ " Upsetter, Motor Drive.

*Wanted for Rebuilding Purpose: Plate Shears,  
Multiple Punches, Bending Rolls, Wheel Presses.*

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**Beatty Machine & Manufacturing Co.**  
954-150th Street, Hammond, Indiana

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# GOOD Used Machinery—

## Partial List—Attractively Priced!

### BORING MILLS — Horizontal

Barrett No. 2, 4 $\frac{1}{2}$ " bar.  
Beaman & Smith 5" bar.  
Cleveland 24" bar.  
Niles-Bement-Pond H B3, 5" bar.  
Universal 24" bar.  
Ryerson No. 12, 4" bar.

### BORING MILLS — Vertical

Bullard 24" 42".  
Niles 7-10' Extension, 2 heads.  
Niles-Bement-Pond 10-16' Extension, 2 swivel heads.  
Niles Bement-Pond 72", 2 heads.  
Betts 90", 2 heads.

### PLANERS

Niles Bement-Pond 60x60x32'; 4 hds.  
Niles-Bement-P. 73"x84"x14' 4 hds.  
Many other planers in stock; inquire about them.

### LATHES

NBP 86"x19" geared head M. D.  
Pittsburgh 50"x74", 50"x30' grd. hd.  
Putnam 50"x30", 36"x26' grd. hd.  
New Putnam 36"x28', 3-step cone DBG  
American 36"x21' grd. hd. Q. C. G.  
Bridgeford 36"x60' combined Boring & Turning.  
Bridgeford 36"x60' Boring.  
LeBlond 25"x12", 25"x10' 3-step.  
Lodge & Shipley 24"x10', 3-step cone.  
McCabe double spindle, 25-45"x12'.  
McCabe 26-45"x12' double spindle.  
Putnam 30-60"x18' gap.  
(and hundreds of other lathes, all sizes).

### MILLING MACHINES

Brown & Sharpe No. 3-A univ. s.p.d.  
Brown & S. No. 4 univ. cone drive.  
Cincinnati No. 2, 3, 4 Plain, SPD.  
Brown & S. No. 2B, 3B, 4B Pl. SPD.  
Pratt & Whitney 5", 8", 10" Auto.  
Lees Bradner No. 6 Thread.  
Pratt & Whitney 4x12, 6x14 Thread.  
Becker C-1 and C Vertical.  
Ingersoll 24x24x12' and 16' slab.  
Ingersoll 24x24x12' planer type.

### GEAR CUTTING EQUIPMENT

Barber Colman No. 3, 12 Hobbers.  
Brown & Sharpe No. 3, 4, 5.  
Brown & Sharpe No. 34.  
Fellows No. 61, 65, 615 gear shapers.  
Gleason 10", 15" Spiral.  
Gleason 6", 11", 18" Generators.  
Cleveland 8 spdl. Hobber.  
Gould & Eberhardt 18" Hobber.  
Gleason 18" burnishing machine.  
Lees-Bradner planisher.

### AUTOMATIC SCREW MCHS.

Cleveland 8", 3", 11" Model A & B.  
Cleveland 3 $\frac{1}{2}$ " Model A, sgle. spdl.  
Brown & S. No. 00, No. 0, No. 2.  
Fay 14".  
Gridley 7/8", 3/4", 1 $\frac{1}{2}$ " 4-spindle.  
New Britain No. 22 auto. chucking.

### GRINDERS

Abrasive No. 3 surface.  
Bryant No. 3 Internal.  
Heald No. 50, 55, 60, 65 Internal.  
Heald No. 70, 85 Internal.  
Landis 10x24", 10x36", 10x52", 10x72".  
Norton 6x32", 10x36", 14x50", 10x72".  
Diamond 84" face.  
Heald No. 72 Sizing machine.

### RADIAL DRILLS

Morris, 3' & 3 $\frac{1}{2}$ ' Pl., S. P. D.  
Dreses 3'.  
Cincinnati Bickford 4', 6' Pl., S. P. D.  
Reed Prentice 4' Pl., S. P. D.  
Fosdick 5' Pl., S. P. D.  
NBP 8' Plain.

### MISCELLANEOUS

Cleveland univ. Relieving Lathe.  
Rockford 36" openside Univ. planer and Shaper; 2 heads motor drive.  
Gould & Eberhardt 24" Shaper.  
Sellers 1/2" Cap. Bending Roll, 10' 4".  
Lenox No. 1 Slitting Shear.  
Threadwell Eng. 12" pipe.  
National 4" Forging Mach.; steel.  
Hilles & Jones No. 4 plate bend. roll.  
Wickes Pyramid type bending roll.  
Cinc. Acme No. 2 univ. tur. lathe.  
Libby 26" turret; 7 $\frac{1}{2}$ " hole, 4 $\frac{1}{2}$ " hole.  
Pen Style 16 and 22 Riveters.

### AN USUAL "BUY"—

#### KELLER type BL 2416.

Precision Toolroom Machine with *Electric Duplicating Features*; precision locating attachment; verniers; m. d.

1000 other machines in stock—Ask for details

**MOREY MACHINERY CO., Inc.**  
410 Broome Street, New York, N. Y.

# MODERN TOOLS

## BROACHES

10 ton Metalwood hydraulic.  
15 ton Oilgear hydraulic.  
No. 3 Oilgear hydraulic.  
No. 3L Lapointe hydraulic.  
No. 3 J. N. Lapointe double.  
Nos. 0, 3 and 4 Lapointe screw.

## COMPRESSORS

40", 6"x6" Gardner vertical.  
67", 6"x6" Chicago NSB.  
92", 7"x6" Ing. Rand ER1.  
120", 8"x6" Ing. Rand ER1.  
136", 8"x8" Ing. Rand ER1.  
184", 9"x8" Gardner.  
253", 10"x10" Ing. Rand ER1.  
369", 12"x10" Chicago NSB.  
446", 14"x9"x10" Bury 2 stage.  
635", 16"x10"x12" Union 2 stage.  
3200", G. E. centrifugal.

## GEAR CUTTERS

Nos. 6, 75 and 715 Fellows Shapers.  
Nos. 16 HS, 18H and 24H G. & E.  
No. 12 Barber-Colman.  
No. 5A Lees-Bradner.  
Nos. 3 and 4 Brown & Sharpe.  
6" Gleason bevel.

## GRINDERS

Norton:—6"x31" to 18-30"x96".  
Landis:—6"x18" to 16"x53".  
Nos. 2 and 4 Brown & Sharpe univ.  
10"x36" Thompson universal.  
12"x36" Bath universal.  
No. 2 Norton tool and cutter.  
No. 3 Abrasive surface.  
30"x72"x18" Springfield surface.  
Nos. 70 and 72 Heald internal.  
No. 4A Landis crank.  
30" and 53" Besly disc.  
Pratt & Whitney worm.

## ENGINE LATHES

14"x6" American geared head.  
16"x8" Cisco.  
16"x8" Walcott, taper relieving.  
16"x8" American geared, head.  
18"x8" Lodge & Shipley grd. hd.  
20"x8" Monarch.  
20"x8" American geared head.  
22"x10" Davis.  
26"x11" Wicks.  
27"x12" Schumacher Boye.

## TURRET LATHES

No. 2, 4, 4 univ. 6 & 3A W. & S.  
Nos. 2, 3 and 4 Foster.  
21" and 24" Gisholt.  
24"x24" and 3x36" J. & L.  
24" Bullard vertical.

## MILLERS

Nos. 1 1/2 B. S. and 2A Milwaukee.  
Nos. 2, 2M, 3, 3S 4 and 5 Cincinnati.  
No. 2 1/2 Rockford.  
Nos. 1 1/2, 2 and 3 Brown and Sharpe.  
Nos. 2, 2 1/2 and 4 LeBlond.  
No. 4 Hendey.  
No. 4 Kempsmith Maximill.  
Nos. 3A & 3A hvy. Brown & S. univ.  
No. 6 Becker vertical.  
24" and 48" Cincinnati duplex.  
24" and 48" Cincinnati automatic.  
24" and 48" Newton rotary.  
48" Ohio tilted offset.  
48"x48"x8" Beaman & Smith O. S.

## MILLS, BORING

24" Bullard New Era.  
34" Colburn.  
42" Detrick & Harvey.  
60" Gisholt.  
72" Niles Bement Pond.  
100" Betts.  
2 1/2" Cleveland horizontal.  
3" Rockford horizontal.  
3" Binsee horizontal.

## PLANERS

24"x24"x6" Liberty openside.  
24"x24"x6" Woodward and Powell.  
24"x24" Cincinnati crank.  
26" Lynd Farquhar openside.  
32"x32"x12" Niles.  
36"x36"x8" Gray.  
36"x36"x10" Cincinnati.  
48"x36"x10" Liberty openside.

## PRESSES

Nos. 1 and 6 Toledo O. B. I.  
No. 4A Bliss horning.  
No. 25 1/2 Consolidated horning.  
150 and 400 ton Coining.  
No. 74 1/2 & 78 1/2 Bliss s. s.  
Nos. 55, 56, 57 1/2 Toledo.  
25 ton Henry and Wright.  
96", No. 7 Bliss double crank.  
34", No. 4 Bliss dbl. crank.  
48", No. 23C Bliss double crank.  
Nos. 1 1/2 & 5A Bliss toggle.  
No. 266 Consolidated cam draw.

## SHAPERS

16", 20" and 24" Gould & Eberhardt.  
16" Cincinnati.  
24" Walcott.  
24" Potter & Johnston.

## SHEARS

No. 26 UD Buffalo Ironworker.  
4"x1" Niagara squaring.  
10"x16 ga. Bertsch squaring.  
30" throat, 14ga. Pettingell.

2000 TOOLS IN STOCK. SEND FOR LIST.

Miles Machinery Co., Saginaw, Mich.

# BARGAINS with SAFETY

ANNOUNCING:—The Bennet Machinery Co. and Kennard-Rafkin Machinery Corp. have combined under the new firm name of Bennett-Rafkin Machinery Co. under the same management as before.

## AUTOMATICS

14" Gridley.  
Nos. 23, 24 & 34 New Britain chkg.

## BORING MILLS, Horiz.

24" N. B. P. knee type.  
3" Lucas gear box, s. p. d.  
34" Landis No. 35 Floor Type.  
34" D. & H. floor type.  
54" D. & H. floor type.  
7" NBP floor type.

## BORING MILLS, Vertical

24" Bullard rapid production type.  
42" and 60" Bullard r. p. t.  
48" Colburn p. r. t., m. d.  
72" Betts heavy duty.  
6"—14" Ridgeway extension.  
10" Pond, h. d., cone.

## DRILLS, Radial

24" Fosdick, s. p. d.  
4"—6" Mueller, s. p. d.  
4" Hammond Sensitive.  
4" American gear box, s. p. d.  
5" Western m. d.  
6" N. B. P. right line, a. c. m. on arm.  
6" Cincinnati B., gear box, s. p. d.  
25 H. S. and Multiple Drill, etc.

## GRINDERS

No. 1 Landis Universal.  
Nos. 50, 55 and 65 Heald.  
15x15x72" & 6"x10"x36" Norton surf.  
No. 70 Heald internal.  
No. 2 Diamond 36"x12".  
No. 16 Blanchard, b. d. with 25 h. p. m.  
6"x32" Norton, self-contained.  
No. 103 Rivett internal.  
84" Diamond, face.  
14x72" Norton, cylinder, s. c.  
Universal, chucking, disk, etc.

## GEAR CUTTERS

60" B. & S., No. 6 spur.  
No. 13 Brown & Sharpe, S. & B.

## HAMMERS

300 lb. Beaudry, m. d.  
Nos. 6B and 2B Nazel.  
200 lb. Bradley, cushioned helve.  
400 lb. Bliss, belt drop.

## KEYSEATERS

No. 3 Mitts & Merrill.  
No. 3L LaPointe Hydr. Broach.

## LATHES

20"—14", 16", 18", 20", belt & g. h.  
24"x12" Putnam, q. c. g., cone.  
32"x12" Bridgeford, grd. hd., q. c. g.  
36"x14" Putnam, grd. hd.  
36"x26" L. & S. cone, q. c. g.  
36"x32" Bridgeford, grd. head, t. a.  
45"x45" N. B. P. grd. hd.  
50"x30" Pittsburgh, grd. hd., 2 car.

## MILLERS, Production

19" Cincinnati auto, plain 24" feed.  
Cincinnati auto, plain, 48" feed.

## MILLERS, Vortical

C, AB, 4B, 3, Becker.  
No. 14 Garvin, table 20x48.

## MILLERS, Plain

No. 4G LeBlond, grd. hd.  
No. 3 Cincinnati, grd. hd., P. R. T.  
No. 2 Kempsmith Maximiller.  
No. 2 B. & S., cone Cullman, m. d.  
No. 1 LeBlond, cone Cullman, m. d.

## MILLERS, Universal

No. 2A Brown & Sharpe, s. p. d.

## MILLERS, Planer Type

Ingersoll adj. rail, 32"x12".

## PIPE MACHINES

18" 12" & 8" Saunders.  
8" Jarecki, gear box, m. d.  
2" Bignall & Keeler, m. d.

## PLANERS

48"x36"x16", N. B. P., box table.  
42"x36"x12" & 24"x24"x6" Cincinnati, m. d.  
17"x17"x4" Whitcomb, m. d.

## PUNCHES and SHEARS

54" H. & J. No. 2 double end.  
No. 26UD Buffalo Armor.  
No. 13 Pels Armor.

## ROLLS

17"x12" Niles A. C. m. d.  
16"x12" Wickes, pyramid type.  
12"x12" H. & J. No. 4.  
10"x12" Bertsch, pyr.  
10"x12" Cleveland pyr.  
8"x8" Pyramid.

## SAWS

6" Peerless univ., shaping.  
No. 16 Higley, cold, m. d.  
No. 4B Cochrane & Rly.

## SHAPERS

24" Stockbridge, a. c., m. d.  
20" Rockford, gear box, m. d.  
16", 20" & 24" G. & E.

## SHEARS

168"x12" United, 20" gap.  
156"x12" Meata, 15" gap.  
156"x12" Hyde Park, 17" gap.  
144"x12" United, 15" gap.  
12"x3/16" Ohl.

## TURRET LATHES

Nos. 4 & 14 W. & S. heavy 1" cap.  
2x24 J. & L., (2).  
No. 4L Gisholt.  
No. 2 Bardons & Oliver, 1" capacity.  
No. 4B Bardons & Oliver.  
14" Acme m. d., 1-3/16" cap.  
21" and 24" Steidle, m. d.  
18" and 26" Libby.

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OFFICES: 30 CHURCH ST., NEW YORK CITY

# High Grade Machine Tools

## Lathes

- 42"x20" American Super Production  
geared head, 18 speed, motor driven,  
rapid traverse.  
18"x10" American Geared Hd. S.P.D.  
36"x14" Boye & Emmes, cone, q. c.  
32"x12" Bradford cone, Loose Chge.;  
like new.  
36"x20" Bradford cone, Loose Chge.  
24"x16" Lodge & Shipley sel. grd. hd.  
S. P. D.  
36"x18" American g. h., s. p. d.  
28"x48"x10" Harrington, Slid. Bed.  
20"x10" American Grd. Hd. S. P. D.  
20"x8" Am. Grd. Hd., M. D., late.

## Grinders

- 16"x52" Landis self contained.  
No. 2 Brown & Sharpe Universal.  
16"x48" Landis Crankshaft.  
16"x48" & 72" Landis Crankshaft.  
Type A Production Abrasive Finishing  
Nos. 50, 55, 60, 65 and 70 Heads.  
6"x18" Landis Plain, Self Contained.  
10"x52" Landis Plain, Self Con.  
Rivett Internal Grinder.

## Gear Cutters

- Nos. 61, 615 & 645 Fellows.  
No. 6—60" Brown & Sharpe.  
36BM Gould & E. Gear Rougher.  
No. 3, 26" Brown & S. Gear Cutter.  
No. 4, 48" Brown & Sharpe.  
Nos. 1, 2, 4 Adams Farwell Gear Hb.  
18-H Gould & Eberhardt Hobber.  
6", 11", 18" Gleason Gear Generators.

## Bolt and Pipe Threaders

- 1/2" Landis Double Spindle Lanco Hds.  
2" Landis Double-Spindle.

## Boring Mills

- 42" Bullard S. P. D.  
36"-44" Niles-Bement-Pond Side hd.  
Mill, Rapid Traverse.  
42" Niles Boring Mills, 2 heads.  
14" Betts, Cone Drive.  
60" Niles Boring Mill, 2 heads.

## Milling Machines

- No. 3 Cincinnati Universal, cone dr.  
No. 4 Cinti. High Pwr. Univ. S.P.D.  
No. 2 & 3 Kemsmith Plain, M. D.  
No. 3 LeBlond H. D. Plain.  
No. 3 Kemsmith Universal.  
No. 2 Rockford Universal, complete.  
No. 3-B Milwaukee Pl., Dbl. O. A.  
5B Becker Vertical Mill.  
5" Pratt & Whitney Automatic.  
18" Cincinnati Plain Mfg. Miller.  
Briggs Manufacturing Miller.  
No. 7-H Becker Lincoln type.  
No. 1 Knight Miller and Driller.

## Planers

- 30"x30"x8" American two heads.  
30"x30"x16" Gray, two heads.  
24"x6" Ohio.  
24"x24"x14" Gray, box table.  
42"x42"x10" Cleveland Openside,  
3 heads, A. C., M. D.

## Radial and Upright Drills

- 24" Cincinnati Bickford Upright, tap.  
2 1/2, 3, 3 1/2, 6' Cinci.-Bick. S. P. D.  
3, 3 1/2, 4 American Trip. Pur. S.P.D.  
3" Bickford Plain, S. P. D.  
No. 2 Colburn Mfg. H. D. 2-spindle.  
No. 40 Natco Straight Line Multi.

## Shapers

- 20" Ohio, motor driven.  
16", 20", 24" Gould & Eberhardt  
motor drive, thru gear box.  
16", 20" and 24" G. & E., cone drive.

## Miscellaneous

- No. 3-B LaPointe Broaching Mche.  
80lb. Bradley Cushion Helve Hammer  
High Speed Riveting Hammers.  
Nos. 1 & 3 Baker Keyseating Mches.  
No. 2 Mitts & Merrill Keyseater.  
Nos. 1 & 2 Davis Keyseaters.  
V-18 Amer. Vert. Broaching Mche.  
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96A Toledo Double Crank Press  
No. 163B Consolidated Dbl. Crank.  
No. 1 & 2-X Garvin Tapping Mches.  
No. 4 W. & S. Univ. Turret Lathe.  
Nice Variety of Sizes of Presses.

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**Cincinnati Machinery & Supply Co.,** 28 West Second St., CINCINNATI, OHIO

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36" Bullard with side head, r. p.  
36" Niles vertical, 2 heads.  
60" Vertical Mill, 2 heads.

## GRINDERS

No. 2 Brown & Sharpe surface.  
No. 24 Gardner 53" vert. disc., m. d.  
Diamond surface 16"x48" table.  
Double disc grinders—all sizes.

## LATHES

18"x6' L. & S. sel. geared head.  
18"x10' L. & S. sel. grd. head, (3).  
28"x12' Bridgeford, q. c.  
24"x12' Lodge & S. cone drive.  
36"x14' L. & S. triple geared.  
36"x14' American triple geared.  
24"x22' American q. c.  
32"x12' Boye & E., cone head q. c.  
36"x16' Lodge & Shipley s. p. d.  
36"x36' LeBlond q. c.

## PRESSES

No. 4 & 5 Consolidated inclinable.  
No. 57 Niagara 18" bet. housing.  
Nos. 21 & 24 Bliss inclinable.

## WELDERS

200 amp. Lincoln arc, m. d.  
20 k. w. National spot, 36" arms.  
25 k. w. Thompson, 30" arms.  
10 and 12 k. w. Federal.

## MILLING MACHINES

No. 2 Cincinnati univ. s. p. drive.  
No. 3 Kemp. univ. 3 step cone, d. b. g.  
No. 34 Oesterlein plain, cone drive.  
No. 3B Brown & Sharpe, s. p. dr.  
No. 4 LeBlond plain 3 step cone.  
No. 6 Becker vertical, rotary table.

## MISCELLANEOUS

Bulldozer, No. 4 Rock River, m. d.  
Bolt cutter, 1 1/2" Landis dbl. spindle.  
Bolt cutter, 1 1/2" & 2" Acme.  
Gear cutters, Nos. 3, 4 B. & S.  
Hack saws, 12x15 Racine (2).  
Keyseater, No. 2 Mitts & Merrill.  
Radial, 4' Hammond, sensitive.  
Radial 6' Drees, s. p. drive.  
Straightening rolls, 54" H. & J.  
Shaper, 32" Cincinnati, cone drive.  
Square shear, 48"x14 ga.  
24" Libby turret, s. p. drive.

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**The Jones Machine Tool Co.**  
Front & Pike Sts., Cincinnati, Ohio

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Boring Mill, 42" Gisholt M. D.  
Brakes, 6', 3/16" cap. Power.  
Die Heads, large stock Geometric.  
Drills, 1, 2, 3, 4 & 6 spd., ball bearing, Leland & Gifford, Avey;  
20" and 25" Barnes b. g., p. f.  
Grinders, No. 1 1/2 Landis, universal;  
No. 1 LeBlond tool & cutter; 26"  
Badger disc, ball bearing; 16x32  
Landis crankshaft; No. 65 Heald.

24" x 12' S. & B. q. c. g., taper att.;  
Porter-Cable, air chuck, m. d.;  
4 1/2"x60 Fitchburg Lo-Swing.  
Millers, 12" Cincinnati B. G.; No. 2  
Kempsmith univ.; No. 2 B. & S.  
universal; No. 3 Kempsmith, plain  
& univ.; No. 34 Ohio plain; 24"  
Cincinnati automatic.  
Millers, vertical, No. 3 Becker.  
Planers, 24"x6' & 8' Gray, 1 head.

## SPECIALS

No. 5 CINCINNATI rectangular overarm Milling Machine, m. d.;  
16"x10' ROCKFORD geared hd. Timken Bearing Motor Driven  
Lathe, taper attach. & collets; 16"x8' MONARCH Geared Head  
Timken Bearing Motor Driven Lathe with collets; 24" AMERICAN  
Shaper, Motor Drive. No. 13 B. & S. Tool Room Grinder.

Hacksaws, Nos. 1, 2 Marvel; 6x6,  
Racine & Peerless shaping; 9x9  
Peerless.

Keyseater, No. 3 Mitts & Merrill.  
Lathes, 9"x4' South Bend, q. c. g.;  
13"x8' Willard, s. q. c., collets  
& taper attach.; 14"x6' C. & J. Lathe;  
16"x10' Hendey, taper attach.;  
16"x10' Seneca Falls, q. c. g.; 17"x8'  
LeBlond grd. hd., m. d.; 18"x5'  
Sebastian grd. hd., motor in base;

Punch presses, o. b. i. No. 3 L. & J.;  
No. 3 1/2 Toledo; No. 20 Bliss.  
Punch presses, Nos. 1 & 1 1/2 Bliss  
cam draw. Horning; No. 39 Bliss.  
Screw mchs., Nos. 0, 1, 3, 5 Foster.  
Shapers, 14" to 28" G. & E., s. p. d.  
Shears, 30" Bertsch corrugating.  
Thread Miller, 6x60 Pratt & W.  
Welders, arc, 200 & 300 Amp. USL;  
Wilson.  
Welders, spot, 5 K. W. Dyer.

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3	48	56	1.10 " "	2.75 " "
4	36	48	1.10 " "	2.75 " "
5	40	44	1.10 " "	2.75 " "
6	32	40	1.10 " "	2.75 " "
8	32	36	1.10 " "	2.75 " "
10	24	32	1.10 " "	3.03 " "
12	24	32	1.10 " "	3.30 " "
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3/16	24	32	.11 each	
1/4	20	28	.17 "	.29 each
5/16	18	24	.17 "	.32 "
3/8	16	24	.17 "	.37 "
7/16	14	20	.17 "	.43 "
1/2	13	20	.22 "	.52 "
9/16	12	18	.28 "	.62 "
5/8	11	18	.33 "	.73 "
11/16	11	16	.39 "	.86 "
3/4	10	16	.44 "	1.03 "
7/8	9	14-18	.44 "	1.42 "
1	8	14	.55 "	1.91 "
1 1/8	7	12	.83 "	2.47 "
1 1/4	7	12	.83 "	3.15 "
1 3/8	6	12	.83 "	3.96 "
1 1/2	5	12	1.65 "	
1 3/4	5	12	1.65 "	
2	4 1/2		2.20 "	

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3' American Radial Drill, arranged for motor drive, thru gear box, tapping attachment, tilting box table.  
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12" Cincinnati Production Mill, arranged for motor drive.

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- No. 4 LeBlond plain, cone drive.  
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4" Newton double spdl. spline mill.  
Becker model C 24" rotary table, m. d.  
Hand milling mche., various sizes (10).

### DRILLS

- 416-Baker H. D. single pulley drive.  
No. 314 Baker, h. s., single pulley dr.  
2-spindle Leland & G. h.s., pwr. feed.  
Foot-Burt straight line drills, adjustable heads (4).  
60 spindles high speed drills in 1, 2 and 4 spindle combinations.  
Single spindle 21 and 24" Cincinnati and Barnes upright drills, (20).

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7½ h. p. Besley double disc grinder, built in motor.  
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No. 55 Heald internal.  
No. 70 Heald internal.  
No. 2 Brown & Sharpe universal grinder, regular equipment.

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- No. 6 Warner & Swasey F. H. turret lathe, with air chuck.

- No. 5 Foster f.g.h. hand screw mche.  
No. 2A W. & S. universal turret lathe.  
No. 4 W. & S. f.g.h. turret lathes (6).  
18"x8" Monarch q. c. belt drive.  
26"x12" Schumacher & Boye.  
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16"x8" Hendey taper attachment.  
14"x6" Hendey geared head tap. att.  
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No. 5 Toledo plain O. B. I.  
No. DDG4 Ferracute cam-drawing.  
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- 1-No. 4 Colburn single spindle Mfg. type.
- 1-No. 2 3-spindle Colburn Mfg. Type.
- 1-No. 2 4-spindle Colburn Mfg. Type.
- 1-Model B 250 H. NATCO single hydraulic vertical driller, m. d.
- 4-No. 217 Baker single spindle, plain table.

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Flanger, No. 208 Niagara.  
Gang Slitters, 48" Bliss, 32 & 36".  
Grinder, disc, Besley 30", b. b.;  
cyl. Landis 12x42"; 14x72 Norton

uprights, No. 137-C Stoll, 3" str.  
48" bet. No. 102 Bliss-Cons.  
Stiles type, P2, P3 Ferr., 34P  
Toledo, 224 Adr. b. g. 5" str.  
Presses, O. B. I., No. 2 V. & O.,  
No. 6 Leffler, No. 3 L. J.  
Press, hydraulic, 200 ton, 38"x62"  
between posts.  
Punches, Cleveland 60" throat.  
Radial Drill, 3' Cin.-Bick., m. d.  
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Rivet spinner, No. 107 Grant,  
1 1/2" throat.  
Roller Die Mche, 7 pairs sp., m. d.

## EXCEPTIONAL

Drawing press, No. 13 Bliss toggle  
9" shaft, 40" bet. housings.  
Grinder, disc, No. 24 Gardner 53"  
Grinder, face, Diamond 84", m. d.  
Planers, opens., 30"x8' Cleveland.  
Press, coining, 800 ton, tie rod.

Press, No. 501 Ferracut 400 ton  
s. s., 11 1/2" stroke, tie rod frame.  
Press Brake, 10"x10 ga., 10 3/16".  
Shear, gate, 10 3/16" W. & W., 15" gap.  
Shears, 13 1/2" Bertick; 6 3/8" 24",  
gap; Chicago Steel 10 3/16".

Ironworkers, Schatz, 6" x 4" x 1 1/2".  
Lathes, gd. hd., 26"x16" Ryerson.  
Lathes, 18"x8" Hendey, t. s.,  
Gisholt, 5 1/2" hole in spdl., 30".  
Mill, Ingersoll, 24x28x12 1/4 heads.  
Millers, auto, 17" & 24" Cinc.  
Millers, plain, Kearney & T., s. p. d.  
No. 1 1/2, No. 2; B. S., No. 1A.  
Millers, vert. No. 3 Knight, pwr. fd.  
Multiple Punches, No. 10 and 12  
Wells, 6' bet. hous.; W. & W., 48".  
Nibblers, No. 1 Gray; Campbell, 3".  
Planers, 72"x18", 3 heads.  
Presses, 93F Tol. dbl. crk., 66" betw.

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Saws, No. 0 Ryerson Friction;  
No. 1 Klemm Band.  
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Shears, Throatless 1/4" 12 ga., 10 ga.  
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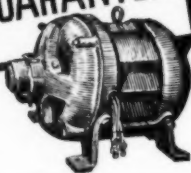
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 Drill, No. D-3 Colburn, h.d., 3" cap.  
 in steel.  
 Drill, horiz., Nr. 00-S Garvin duplex.  
 Drill, No. 6 Namco horiz., semi-auto.  
 6 spindles.  
 Drill, 3½" Cin-Bickford pl. radial, m.d.  
 Grinder, internal, No. 3 Van Norman.  
 Grinder, No. 10 B. & S. plain, 6x20.  
 Grinder, No. 1 Landis universal.  
 Grinder, 16x72 Norton crankshaft, pl.  
 Grinder, No. 10 Bealy double disc.  
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 Lathe, 18"x14" Prentice, geared hd.  
 Lathe, 24"x12" L. & S. crankshaft.  
 Lathe, 28"x12" Boye & Emmes.  
 Miller, No. 1 Kempnuth.  
 Miller, No. 1½ LeBlond plain, h. d.  
 Miller, No. 4 LeBlond plain, h. d.  
 Miller, No. 13-B B. & S.  
 Miller, No. 4-B Becker vertical.  
 Pipe machine, 4" Ostr.  
 Planer, Cleveland 48x48x12' open s.  
 Planer, Cleveland 48x48x20' open s.  
 Press, No. 3 Rockford 25 ton.  
 Press, No. 5 Rockford, 50 ton.  
 Press, No. 16 Bliss horning.  
 Press, No. 52 Toledo arch.  
 Press, No. 56 Niagara s. s. single crk.  
 Press, No. 57 Niagara s. s. single crk.  
 Press, No. 610 D Nia. dbl. crk 148 ton  
 Screw machine, No. 4 W. & S.  
 Shaper, 24" G. & E.  
 Shear, 8" Niagara 14 gauge, m. d.  
 Shear, 11" Stoll 14 gauge, m. d.  
 Welder, spot, 15 k. w. National.

All machines backed by Essley guarantee

**THE E. L. ESSLEY MACHINERY CO.**  
 631 REES ST., CHICAGO, ILL.

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12"-14"-16" Hendey Lathes,  
 Serial No. 27000.

### SHAPERS:

16" Gould & Eberhardt, S.P.D.  
 16"-20"-24" Cincinnati, S.P.D.

### GRINDERS:

Nos. 3 & 33 Abrasive Surface.  
 Nos. 10 & 11 B. & S., Pl., S.P.D.  
 No. 2 Brown & Sharpe Univ.,  
 Ser. No. 3000.

### B. & S. AUTOMATIC

No. 00 Full Auto. Ser. Nos.  
 10000 with Auto. Rod Magaz.  
 No. 00 Turret Formers.  
 Nos. 00 Full Auto., Std. speed,  
 Ser. Nos. 9000.  
 No. 0 Full Auto., Ser. Nos. 7000

### MILLERS.

Nos. 1 & 2 Kearney & Trecker,  
 Plain and Vertical.  
 No. 21 B. & S. Auto. Millers.

### PRESSES.

Nos. 20 & 21½ Bliss, O. B.I.  
 Nos. 16-16B & 40 Bliss Horning.  
 Nos. 3A-4-5A-6A Toggle.

### MISCELLANEOUS:

Rockwell Tester.  
 No. 40 Anderson Tapper.

### SCREW MCHS. HI-SPEED

with Auto. Rod Magazines.  
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 Magazines.  
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Bolt threader, 1" Landis, 1 head.  
Die filer, No. 5 Rearwin, sawing attachment, motor drive (new).  
Die filer, No. 5 Thiel, motor drive.  
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Drill, No. 2 Avey, 12" ar. motor dr.  
Drill, No. 2 Avey, 7 1/2" H. S. B. B.  
Drill, No. 1 Avey, H. S. B. B.  
Drill, 25" W. F. & J. Barnes, p. f.  
Drill, 26" Barnes, sld. hd. B. G. t. a.  
Drill, 20" L.-G. power fd., B. B.  
Drill, No. 2B Edlund H. S. B. B.  
Drill, 2 spindle L.-G., H. S. B. B.  
Gear hobber, No. 3 Barber-C.  
Gear hobber, 12H Gould & E.  
Grinder, No. 2 B. & S., auto, surf.  
Grinder, No. 3 Abrasive surf., m. d.  
Grinder, No. 2 Wilmarth & M. surf.  
Grinder, No. 1 W. & M. univ. t. & c.  
Grinder, 3 H. P. Marschke (new).  
Grinder, No. 2 Brown & S. cutter.  
Grinder, 16x32" Landis Crankshaft.  
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Lathe, 16"x8" Monarch grd. hd.m.d. collets & chuck. Timken bearing.

Lathe, 16"x10" Rock. grd. hd., m. d. t. a. collets and chuck, Tim. br.  
Lathe, No. 3 Foster univ. turret.  
Lathe, 24"x12" S. & B. q. c. g.  
Millers, No. 1 & 1 1/2 B. & S. plain.  
Miller, No. 1 1/2 Valley City, univ.  
Miller, No. 2 1/2 Rock. univ. cone dr.  
Miller, No. 3 Kemp. univ. vert. hd.  
Millers, No. 2A Brown & Sharpe universal mtr. dr. and S. P. D.  
Miller, No. 6 Whitney h. d., mtr. dr.  
Miller, 24" auto, Cincinnati Prod.  
Planers, 30"x30"x7" Gray, 1 head.  
Press, No. 1 Bliss cam draw. grd.  
Press, No. 1 1/2 Bliss cam drawing.  
Press, No. 3 R. & K. o. b. i., 2 1/2" str.  
Press, No. 39 Bliss horning.  
Press, No. 30A Perkins o. b. i.  
Saw, 6x6 Peer. univ. shaper., m. d.  
Saws, 6"x6" & 9"x9" Peerless, m. d.  
Saw, No. 6 Marvel high speed.  
Shapers, 7" Rhodes, 16" and 25" S. & M., 16" G. & E., 24" American & Stockbridge, motor drive, 28" Gould & Eberhardt.  
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## NEW 3 Phase Motors 1 to 20 H. P., 5 H. P.-----\$55.75

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14"x6' Monarch, quick change. | 12"x5' Cleveland - geared head.  
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Nos. 52, 53, 55 Nat'l Acme auto. | 21" and 24" Gisholt.

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20" Smith & Mills. | 14" Niles travelling head.

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32" Hoefler, sliding head. | 4, 24" Foote-Burt, single base.

### MILLING MACHINES

No. 2 Kempsmith universal. | No. 2 Brown & Sharpe, heavy.  
No. 4 LeBlond lathe. | 24"x20"x8' Ingersoll.

### MISCELLANEOUS

Band saw, Clark, compound. | Press, Cam Drawing, No. 24 Toledo  
Gear miller, No. 1 Bilton. | Sand Blast, Boland.  
Planers, Gray, 36" and 42". | Shear, Loy & Nawrath 3/8" cap. 10'.  
Press, No. 2 Toledo O. B. I. | Press, No. 75 O. B. Toledo.

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62" King; 52" Gisholt; 48" Colburn. | 42" - 36" - 24" Bullard New Era  
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3 1/2" bar Blomquist-Eck Horiz. | 4 1/2" bar Niles - Bement - Pond  
2 1/4" bar Lucas Horiz. | Horiz., Duplex Control, tbl. type

### MILLING MACHINES

Nos. 5, 4, 3, 2 Cincinnati, Plain. | No. 2 Cincinnati Univ. grd. head  
Nos. 4, 3 & 2 Cincinnati Vertical. | No. 15 Garvin Vertical.

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8' and 6' Cincinnati-Bickford Enclosed Head, Motor Drive.  
6' and 5' American Triple Purpose Enclosed Head, S. P. and M. D.  
3 1/2' and 3' Carlton, S. P. D.

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42"x24" Niles-Bement-Pond. | 28"x18" Chard.  
36"x32" Cleveland Geared Head. | 26"x24" Putnam.  
36"x16" Fitchburg. | 16"x8" Hendey g.h., Taper, Collets.

### MISCELLANEOUS

Turret Lathes, 6 1/4" hollow spindle x 24" Gisholt.  
Air Compressor, 14"x12" Ingersoll-Rand Type ERI, M. D., Complete.  
Grinder, No. 10—6"x20" Brown & Sharpe Plain Self-contained.  
Grinder, 14" Pratt & Whitney Vertical Surface, Ball Bearing Spindle.  
Grinder No. 16 Blanchard Direct Motor Drive, 30" chuck.  
Gear Generators, 8" Gleason Spiral Bevel.  
Keyseater, No. 0 Baker.  
Planer, 60"x54"x16" Woodward & Powell, three heads.  
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Shear, 60"x1/4" Niagara, 18" Cap, Motor Drive.

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Bradford 16"x8" hd. q. c. g. lathe; c. d.  
Bradford 20"x8" q. c. g.; taper att.; c. d.  
Bradford 22"x10" q. c. g.; b. d.; new.  
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lathe, c. d.

Bradford 20"x10" quick chg. lathe, c. d.  
LeBlond 18"x8" l. c. g.; d. c. mtr. driven.  
LeBlond 18"x10" Late Type; with  
turret; c. d.

LeBlond 17"x6" Mfg. Type; cone dr.  
American 12"x5" l. c. g.; motor driven.  
LeBlond No. 12 multi-cut; complete  
tooling; s. p. d.

### TURRET LATHES

Gisholt 28" tilted tur.; 7½" hole; m. d.  
Gisholt 24" tilted turret; 6¼" hole;  
d. c. m. d.

Gisholt 21" tilted turret; 5" hole; m. d.  
Gisholt 21" tilted type turret lathes,  
motor drive, (2).

Gisholt No. 1-L h.p. tur. late type; m. d.  
W. & S. No. 6 univ. tur., m. d., (a. c.)  
W. & S. No. 4 turret lathe; d. c., m. d.  
Acme 3¼"-36" grd. hd. tur.; s. p. d.

### MISCELLANEOUS

Atkins No. 3 metal cutti. g band saw,  
belt drive.

Rochester 3" bar hor. bor. mill; s. p. d.  
Fosdick No. 2-A horiz. floor type bor.  
mill, b. d.

No. 2 Fosdick floor type boring mill,  
belt driven.

10"x14 ga. Chicago steel brake hand.  
Bertch 10"x10 ga. Press Brake, m. d.

Niagara 10"x3/16" Power Shear;  
motor drive, late.

Grand Rapids No. 4 Drill Grinder;  
motor driven.

Cincinnati 24" shaper; b. g.; cone dr.  
Ohio 22" shaper; b. g.; cone driven.

American 20" shaper; b. g.; s. p. d.  
Bliss No. 465 gap shear; ¼"x8"; m. d.

Bliss No. 21 o. b. i. punch press; b. d.  
Landis 6" pipe machine; motor driven.

Racine 13"x13" hack saw; b. d.; h. s.  
Peerless 6"x6" dry cut. saw; belt dr.

Bellevue No. 14 indus. furn.; oil burning.  
F. B. Barnes hor. bor. mill; 3" spindle.  
P. & W. thread mill; 6"x48"; b. d.  
Theil die filing machine, motor driven.

### PLANERS

48"x18" D. & H. openside planer; m. d.  
60"x60"x14" Cincinnati; 2 hds.; b. d.  
55"x55"x30" Betts, spur geared 2 hds.  
on rail, motor drive.

26"x26"x10" Gray; 2 hds.; m. d.  
24"x24"x8" Woodward & P.; b. d.

### MILLING MACHINES

Cincinnati No. 4 High Pwr. pl. s. p. d.  
B. & S. No. 4-B heavy plain; s. p. d.  
Cincinnati Nos. 4, 3, 2 pl.; cone dr.

American No. 1½ pl.; p. f.; cone dr.  
Rockford No. 1½ plain; cone driven.

Cincinnati No. 3 univ. p. f.; cone dr.  
Becker No. 6 vertical h. d.; cone dr.

Becker No. 2 vert. mill. mche.; m. d.

### GRINDERS

B. & S. No. 26 plain cylindrical; b. d.  
B. & S. No. 11 plain cylindrical; b. d.

No. 2 Diamond surf. grinder, motor dr.  
Ott No. 8 plain cyl. Grinder; 6"x18";

belt drive.  
Modern 12"x24"; pl. cylindrical; b. d.

Abrasive No. 3 late type surface; b. d.  
W. & M. No. 3 surface; b. d.; wet gr.

Abrasive No. 33 vertical spindle surf.  
grinder, motor drive.

Gardner No. 24 - 53" disc grind;  
a. c. motor drive.

Landis No. 1½ universal & tool; b. d.  
Heald No. 65 Internal gr.; b. d.

### DRILLS, Radial & Sensitive

American 6" triple pur. radial drill, m. d.  
8-spindle Moline hole drill, cone drive.

5" Fosdick RC radial drill, motor dr.  
3½" Cincinnati-Bickford RC radial,

d. c., motor drive.  
Fosdick 5" box column radial, s. p. d.

Niles 3" box column radial; cone drive.  
Colburn No. 4 hi duty; m. d., A-1.

Colburn No. 2 hi duty; t. & l. pul. dr.  
Baker No. 310 hvy. duty, belt driven.

Foot-Burt No. 25 h. d.; sgl. pul. dr.  
Foot-Burt 4-spindle rail type; b. d.

Barnes camel back 3-spindle; m. d.  
Barnes camel back 2-spindle; belt dr.

Barnes 3-spindle 20"; p. f.; belt dr.

# THE E. A. KINSEY CO.

333 West Fourth St.,

Est. 1886

Cincinnati, O.

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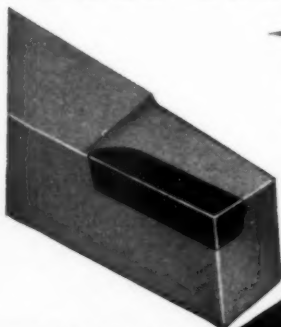
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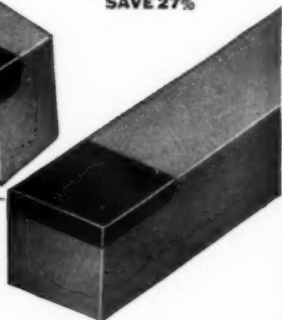
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# EFFICIENCY

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253

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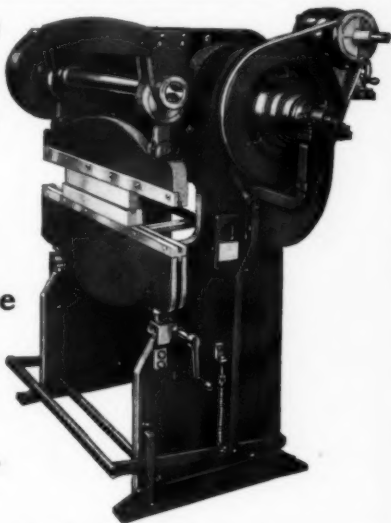
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